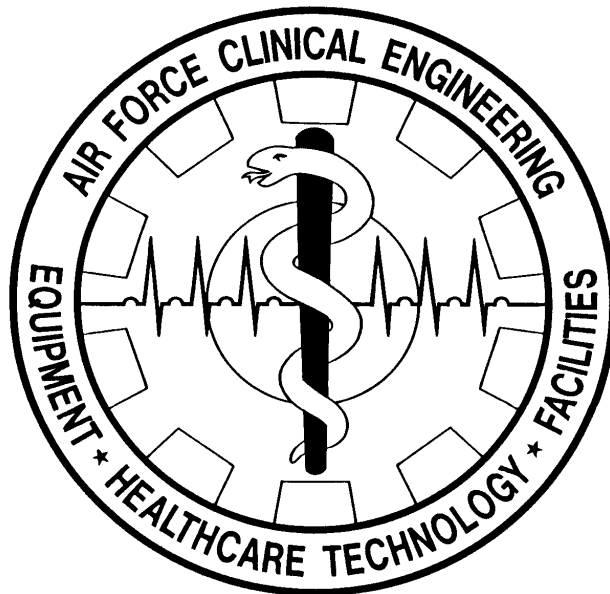


DEPARTMENT OF THE AIR FORCE
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CFETP 4A2X1
Parts I and II
March 2002

AFSC 4A2X1

BIOMEDICAL EQUIPMENT TECHNICIAN



CAREER FIELD

EDUCATION AND TRAINING PLAN

**CAREER FIELD EDUCATION AND TRAINING PLAN
BIOMEDICAL EQUIPMENT TECHNICIAN
AFSC 4A2X1**

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Certified by: CMSgt Gerald Benson

OPR: AFMLO/FOM

Prepared by: MSgt Peter Lytch

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**CAREER FIELD EDUCATION AND TRAINING PLAN
BIOMEDICAL EQUIPMENT TECHNICIAN PERSONNEL
AFSC 4A2X1**

PART I

PREFACE

1. This Career Field Education and Training Plan (CFETP) is a comprehensive core training document that identifies life cycle education and training requirements and training support resources for Biomedical Equipment personnel. The CFETP provides Biomedical Equipment personnel a clear career path to success and instills rigor in unit level training.

2. Civilians occupying associated positions will use Part II to support duty position qualification training. Civilians occupying these positions will be graduates of the DoD BMET Training Program; or be graduates of a formal civilian BMET training program; or have two years of field experience as a Biomedical Equipment Technician (BMET). Certification as a Certified Biomedical Equipment Technician (CBET) through the International Certification Commission (ICC) is highly recommended.

3. The CFETP consists of two parts; supervisors should use both parts of the plan to manage, plan and control training within the career field.

3.1. Part I provides information necessary for overall management of the specialty. Section A explains the purpose and use of the plan; section B explains career field progression, duties and responsibilities, training strategies, educational information, and provides a career field progression flowchart; section C associates each skill level with specialty qualifications (knowledge, training, education, experience, and other); section D indicates resource constraints (i.e., 3/5/7/9 level formal/OJT training). Some examples of restraints are funds, manpower, equipment, and facilities. Section E is the transitional training guide. Section F describes unique requirements for Air Force Reserve and Air National Guard personnel. AFI 36-2108, Airman Classification, contains the job descriptions.

3.2. Part II includes the following: Section A identifies the Specialty Training Standard (STS) and includes duties, tasks, and technical references to support the formal 3-skill level apprentice course, and the 5 and 7 skill level career development courses (CDC); section B contains the Course Objective List and is not currently in use. Section C contains the support materials list and is also not currently in use. Section D is the Training Course Index, which contains information on the basic and supplemental courses; section E contains any Major Command (MAJCOM) unique requirements (there are no MAJCOM unique training requirements at this time); section F identifies medical specific requirements for documentation of training. These packages are indexed in AFIND 8 and are coded as distribution F. At unit level, supervisors and trainers use Part II to identify, plan, and conduct training commensurate with the overall goals of this plan.

4. Using guidance provided in the CFETP will ensure individuals in this specialty receive effective and efficient training at the appropriate point in their career. This plan will enable us to train today's force for tomorrow's jobs.

ABBREVIATIONS/TERMS EXPLAINED

Advanced Training. A formal course, training toward a technical or supervisory level Air Force specialty (AFSC). Training is for selected career airmen at the advance level of an AFS.

BMET. Biomedical Equipment Technician (AFSC 4A2X1).

Career Field Education And Training Plan (CFETP). A CFETP is a comprehensive multipurpose document encapsulating the entire spectrum of training in a specialty. It outlines a logical growth path, including training resources, and is designed to eliminate duplication and make training identifiable and budget defensible.

Continuation Training. Additional training exceeding requirements with emphasis on present or future duty assignments.

Core Task. Tasks Air Force specialty functional managers identify as minimum qualification requirements within an Air Force specialty regardless of duty position.

Course Objective List (COL). A publication, derived from our initial skills course training standard, identifying the tasks and knowledge requirements, and respective standards provided to achieve a 3-skill level in this career field. Supervisors use the COL to conduct graduate evaluations in accordance with AFI 36-2201.

Specialty Training. A mix of formal training (technical school) and informal training (on-the-job) to qualify and upgrade airmen in each skill level of a specialty.

Initial Skills Training. A formal school course that results in the award of a 3-skill level Air Force specialty code.

Instructional System Development. A deliberate and orderly process for planning and developing instructional programs to ensure personnel are taught the knowledge, skills, and attitudes essential for successful job performance.

JCAHO. Joint Commission on Accreditation of Healthcare Organizations. The Joint Commission evaluates and accredits nearly 19,000 health care organizations and programs in the United States. An independent, not-for-profit organization, it has developed state-of-the-art, professionally based standards and evaluated the compliance of health care organizations against these benchmarks. Their mission is to continuously improve the safety and quality of care provided to the public through the provision of health care accreditation and related services that support performance improvement in health care organizations.

MERC. Medical Equipment Repair Center.

MTF. Medical Treatment Facility.

National Fire Protection Association (NFPA). The NFPA is the worldwide advisor on fire and life safety and protection.

On-the-Job Training (OJT). Hands-on performance, with over-the-shoulder supervision training conducted at the duty location to certify personnel in both upgrade (skill level award) and job qualification (duty position certification) training.

POI. Plan of Instruction.

Qualification Training. Actual hands-on task performance-based training designed to qualify an airman in a specific duty position. This training program occurs both during and after the upgrade training process. It is designed to provide the performance skills training required to do the job.

Qualification Training Package (QTP). An instructional course designed for use at unit level to qualify, or aid in qualification, in a duty position or on a piece of equipment. It may be printed, computer-based, or other audiovisual media.

RSVP. Readiness Skills Verification Program. A web based software program, which identifies all war-time skill requirements by AFSC and is used as an Air Force Medical Service management tool to ensure contingency skills are sustained.

Resource Constraints. Resource deficiencies, such as money, facilities, time, manpower, and equipment that preclude desired training from being delivered.

Specialty Training Standard (STS). An Air Force publication that describes an Air Force specialty in terms of tasks and knowledge in which an airman in that specialty may be expected to perform or to know on the job. It further serves as a contract between Air Education and Training Command (AETC) and the functional user to show which of the overall training requirements for an Air Force specialty code are taught in formal schools and correspondence courses.

Standard. A fixed quantity or quality.

Total Force. All collective Air Force components (active, reserve, and civilian elements of the United States Air Force).

TR. Training References.

Upgrade Training (UGT). Training that leads to the award of a higher skill level in an Air Force specialty.

U&TW. Utilization and Training Workshop. A forum of MAJCOM Air Force Specialty Code (AFSC) MAJCOM Functional Managers (MFM), Subject Matter Experts (SMEs), and AETC training personnel that determines career ladder training requirements.

SECTION A, GENERAL INFORMATION

1. Purpose of the CFETP. The CFETP provides information for career field managers, commanders, training managers, supervisors, trainers, and the technical training center to use to plan, develop, manage, and conduct an effective career field training program. The plan outlines the training individuals must receive to develop and progress throughout their career. The plan identifies initial skills, upgrade, qualification, advanced, and continuation training. Initial skills training is the AFSC specific training an individual receives upon retraining into this specialty. For our career field, this training is provided by Air Education and Training Command (AETC) at Sheppard AFB, Texas by the 882d Training Group. Upgrade training identifies the mandatory courses, task qualification requirements, and correspondence course completion required for award of the 3, 5, 7, and 9 skill levels. Qualification training is actual hands-on task performance training designed to qualify an airman in a specific duty position. This training program occurs during and after the upgrade training process. It is designed to provide the performance and skills/knowledge training required to do the job. Advanced training is formal Air Force Specialty training used for selected airmen. Continuation training is additional training, either in-residence or exportable training courses, or on-the-job training provided to 3, 5, 7, and 9 skill level personnel to increase their skills and knowledge beyond the minimum required. The CFETP also serves the following purposes:

1.1. A management tool to plan, manage, conduct, and evaluate a career field training program. It is also used to help supervisors identify training at the appropriate point in an individual's career.

1.2. Identifies task and knowledge training requirements for each skill level in this specialty and recommends training/education throughout each phase of an individual's career.

1.3. Lists training courses available in the specialty, identifies sources of training, and the training delivery method.

1.4. Identifies major resource constraints which impact full implementation of the desired career field training program.

2. Use of the CFETP. The Air Force Career Field Manager maintains the CFETP. MAJCOM Functional Managers and AETC will review the CFETP annually to ensure currency and accuracy, and forward recommended changes to the Air Force Career Field Manager. MAJCOMs must ensure training isn't developed that can be satisfied by existing courses. This plan will be used at all levels to ensure a comprehensive and cohesive training program is available/instituted for each individual in the career ladder.

2.1. AETC training personnel will develop/revise formal resident and exportable training based on requirements established by users and documented in Part II of the CFETP. They will also work with the Air Force Career Field Manager to develop procurement and acquisition strategies for obtaining resources needed to provide the identified training.

2.2. The MAJCOM Functional Managers will ensure MAJCOM training programs complement the CFETP mandatory initial skills and upgrade requirements. OJT, resident training, contract training, or exportable courseware/courses can satisfy identified requirements. MAJCOM developed training to support this Air Force Specialty (AFS) must be identified for inclusion in this plan and must not duplicate training already available.

2.3. Each individual will complete mandatory training requirements specified in this plan. Part II, Sections A and B, will be used to determine required training.

3. Coordination and Approval. The Air Force Career Field Manager for AFSC 4A2X1 and AETC training personnel will identify and coordinate career field training requirements. The Air Force Career Field Manager for AFSC 4A2X1 has final approval authority on all training matters for AFSC 4A2X1.

SECTION B, CAREER PROGRESSION AND INFORMATION

1. Specialty Descriptions

1.1. Biomedical Equipment Superintendent:

1.1.1. Specialty Summary: Manages the inspection, installation, assembly, repair, calibration, and modification of Biomedical Equipment and support systems. Advises staff and other agencies concerning theory of operation, underlying physiological principles, and safe clinical application of biomedical equipment; and directs biomedical equipment activities. Related DOD Occupational Subgroup: 132.

1.1.2. Duties and Responsibilities:

1.1.2.1. Plans and organizes biomedical equipment activities. Plans and organizes biomedical equipment and support systems repair, calibration, installation, inspection, modification, assembly, and disassembly activities. Establishes controls and standards for biomedical systems operations, and develops methods of evaluating production against such standards and controls. Provides for acquisition of test equipment, tools, spare parts, and shop and office furniture. Arranges for special commercial seminars or formal schools when local requirements dictate a need for specialized training.

1.1.2.2. Directs biomedical equipment activities. Directs methods and procedures to be used in inspecting, assembling, repairing, calibrating, installing, and modifying biomedical equipment and support systems. Assigns specific duties to biomedical equipment personnel, and develops written guidelines for duties and operation. Determines type, extent, and feasibility of repairs, and directs implementation of repair or condemnation procedures. Interprets United States Air Force (USAF), major command, commercial, and local policies concerning biomedical equipment systems. Advises supervisors on matters relating to biomedical equipment systems activities. Reviews complex or difficult maintenance problems, and directs methods and techniques to resolve the difficulty.

1.1.2.3. Inspects and evaluates biomedical equipment activities. Conducts periodic inspections of biomedical equipment activities. Ensures that all biomedical equipment systems used in medical treatment facilities meet patient safety requirements according to USAF, federal regulatory agencies, and applicable civilian codes. Determines safety of environmentally controlled areas and condition of biomedical equipment systems. Discusses inspection findings with superiors and recommends action to correct deficiencies.

1.1.2.4. Performs technical biomedical equipment functions. Analyzes system malfunctions and performs repairs, modifications, calibrations, and installations. Coordinates installation of equipment systems and performs acceptance inspections. Interprets technical publications pertinent to specifications and performance characteristics of biomedical equipment systems. Serves as a technical advisor to the Environment of Care committee; provides technical expertise in purchasing new biomedical equipment systems and equipment interface requirements for Military Treatment Facility expansion and construction projects. Performs, research and recommends modifications to improve the operation and safety of biomedical equipment systems.

1.2. Biomedical Equipment Craftsman:

1.2.1. Specialty Summary: Installs, inspects, repairs, calibrates, and modifies biomedical equipment and support systems. Advises staff and other agencies on theory of operation, underlying physiological principles, and safe clinical application of biomedical equipment. Manages medical treatment facility programs. Related DOD Occupational Subgroup: 132.

1.2.2. Duties and Responsibilities:

1.2.2.1. Advises on problems of installing, repairing, modifying, and using biomedical equipment and support systems. Resolves installation and maintenance problems. Analyzes layout drawings, technical

specifications, schematic diagrams, blueprints, and operating characteristics of biomedical equipment and support systems. Included are radiological systems with image intensifiers, video display and recorders, physiological monitors, automated medical laboratory systems, surgical life support and control systems, dental operating and prosthesis fabrication systems, and optical analysis and measurement systems. Conducts initial tests of equipment and systems to determine consistency with medical and technical specifications. Interprets installation, operation, calibration, and maintenance procedures. Analyzes recurring malfunctions, and recommends corrective actions. Devises new maintenance, inspection, operation, repair, and calibration procedures. Provides consultation to professionals and medical personnel on using equipment, and related patient and operator safety considerations.

1.2.2.2. Repairs, calibrates, modifies, and installs biomedical equipment and support systems. Applies electrical, electronic, physical, optical, mechanical, and physiological principles to diagnose, trace, locate, and repair biomedical equipment and support systems. Performs alignments, calibrations, and adjustments of biomedical equipment systems. Analyzes equipment malfunctions using test equipment, technical data, schematics, and engineering references. Performs modifications of biomedical equipment systems. Completes equipment systems installation consistent with design characteristics, optimum function, and technical requirements.

1.2.2.3. Inspects biomedical equipment systems: Inspects biomedical equipment systems to determine operational status. Performs inspections to determine if contractor-furnished items meet predetermined specifications. Accomplishes inspections of contractor-installed equipment prior to United States Air Force (USAF) acceptance. Conducts inspections of biomedical equipment systems to evaluate user and operator maintenance procedures. Examines equipment for evidence of improper operation and deterioration, unreported malfunctions, and suitability to required functions. Ensures safe equipment system practices are exercised at the operating location, and during installation, repair, modification, and calibration. Instructs in use, care, and safety practices for biomedical equipment systems. Evaluates inspection reports to formulate and propose corrective actions and modifications. Advises users and biomedical equipment systems personnel of new and improved methods of operating, installing, repairing, calibrating, and maintaining equipment systems. Provides equipment systems status reports to be used in budget development for replacement and initial equipment procurement.

1.2.2.4. Performs maintenance administrative functions. Performs tasks relating to collecting and recording historical maintenance data. Quality controls reports to ensure accuracy of repair parts, balance records, and historical maintenance records. Revises preventive maintenance and calibration cycles based on Air Force guidance, manufacturers' literature, and local conditions. Administers the biomedical equipment warranty and guarantee program, and the biomedical equipment contract maintenance program. Ensures availability and control of repair parts, test equipment, hand tools and power tools.

1.2.2.5. Manages medical treatment facility programs. Manages operation, safety, security, maintenance, energy conservation, alterations, and updates of medical facility buildings. Manages associated utilities, installed equipment, and grounds. Manages the Military Construction Program, operational and maintenance projects, and facility modernization programs. Performs liaison duties with base and staff agencies, and civil engineering (CE) on physical plant maintenance. Performs quality assurance of work done by CE or contractors and of housekeeping functions. Accumulates cost data in support of budgets, and verifies reimbursable expenses to CE and base contracting office. Supervises maintenance of the MTF environment, housekeeping, and fixed resources. Conducts periodic inspections of the MTF. Reports issues relating to the physical plant, assigned mission, and disaster planning. Monitors equipment life cycles, utility systems, emergency systems, National Fire Protection Association (NFPA) codes, and Joint Commission on Accreditation of Healthcare Organizations (JCAHO) standards; and ensures compliance with these codes and standards.

1.3. Biomedical Equipment Journeyman/Apprentice:

1.3.1. Specialty Summary. Installs, inspects, repairs, calibrates, and modifies biomedical equipment and support systems. Advises staff and other agencies on operation theory, underlying physiological principles, and safe clinical application of biomedical equipment. Related DOD Occupational Subgroup: 132.

1.3.2. Duties and Responsibilities

1.3.2.1. Installs, repairs, and modifies biomedical equipment and support equipment systems. Assembles and installs new biomedical equipment consistent with manufacturers' design criteria and local requirements. Isolates malfunctions in equipment using test equipment, schematics, flow diagrams, specification data, and hand tools. Repairs or replaces defective components, and makes adjustments to ensure specified operation. Performs modifications according to current directives.

1.3.2.2. Inspects, calibrates, and maintains biomedical equipment and support systems. Inspects biomedical equipment and support systems before issue and acceptance for compliance with technical federal regulations and standards.

1.3.2.3. Performs safety inspections. Inspects and tests all biomedical and patient-related non-medical equipment systems for compliance with current safety standards. Inspects and tests supporting utility systems and specialized environmentally controlled areas of the medical facility for compliance with electrical and patient safety standards. Identifies equipment and support systems, which fail to meet safety standards. Initiates corrective actions and informs personnel of possible safety hazards.

1.3.2.4. Performs maintenance administration functions. Documents maintenance actions on work orders and prepares transactions to update equipment historical maintenance records. Prepares and posts transactions to repair parts inventory systems. Maintains publications and technical reference files. Maintains equipment safety, inspection, modification, and warranty files. Compiles and reviews information and data to be used in preparing reports.

2. Skill/Career Progression. It is essential that everyone involved in training do their part to plan, develop, manage, conduct, and evaluate an effective training program. The guidance provided in this part of the CFETP will ensure individuals receive viable training at the appropriate points in their career. The following narrative and AFSC 4A2X1 career field flowcharts identify the training career path. It defines the training required in an individual's career.

2.1. Apprentice (3-skill level) Training. Initial skills training. The specialty consists of the tasks and knowledge training provided in the 3-skill level resident course (J3ABR4A231 005, PDS code 9BA) located at Sheppard AFB, Texas, described in AFCAT 36-2223, USAF Formal Schools. Initial skills training requirements are driven by the Specialty Training Standard (STS). The STS was developed from data collected from the Occupational Survey Report, February 2001. All Individuals must complete the initial skills course to be awarded AFSC 4A231.

2.2. Journeyman (5-skill level) Job Qualification Training. This specialty has a 5-skill level awarding Career Development Course (CDC). Qualification at the 5-skill level is awarded only after successful completion of the CDC, on-the-job training or granted a waiver by the 4A2 Career Field Manager and recommended by the Supervisor and approved by the commander.

2.3. Craftsman (7-skill level) Training. This specialty has a 7-skill level awarding CDC. Qualification of the 7-level is awarded upon successful completion of the CDC (once available), on-the-job training, recommended by the supervisor and approved by the commander. Supplemental and commercial courses are desirable. Knowledge of Air Force property, resource protection, and accountability of Air Force property is mandatory. Knowledge of data automation systems procedures is desirable.

2.4. Superintendent (9-skill level) Training. To be awarded AFSC 4A291, an individual must be an E-8.

3. Training Decisions. This CFETP includes life cycle training requirements for this specialty. Included in this spectrum was the strategy of when, where, and how to meet these training requirements. The strategy must be apparent and affordable to reduce duplication and eliminate a fragmented approach to training.

3.1. Initial Skills Training. The initial skills course provides training needed to prepare graduates for their first duty station assignment as a Biomedical Equipment Apprentice.

3.2. **Upgrade training.** Upgrade training is accomplished through completion of the CDC and continuous on-the-job training. Upgrade training is the responsibility of the trainee, trainer, supervisor, and manager at all levels. Failure to satisfactorily progress is cause for decertification, demotion, and separation from the Air Force.

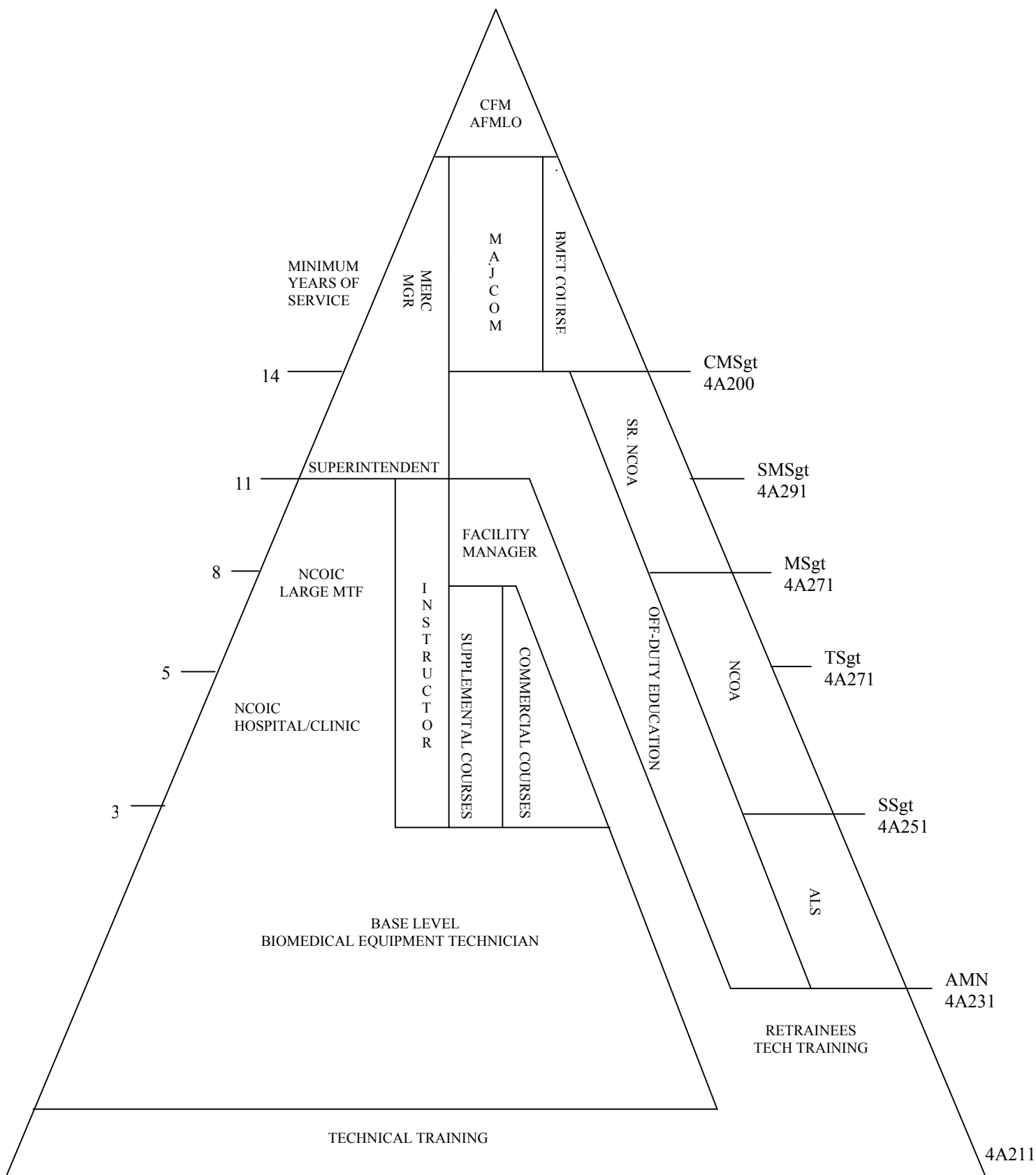
3.2.1. The 4A251 CDC is designed to educate the Biomedical Equipment apprentice in biomedical equipment principles and equipment systems.

3.2.2. The 4A271 CDC is designed to educate the Biomedical Equipment journeyman in various management and supervisory tasks required of the craftsman position. *It is not intended to include Biomedical Equipment systems in this CDC.*

4. **Career Field Path.** The following flowcharts depict an Air Force enlisted career path and this specialty's career path. The career path outlines when training is required or desired for each skill level and the function within this specialty.

ENLISTED CAREER PATH

Education and Training Requirements	GRADE REQUIREMENTS			
	Rank	Average Sew-On	Earliest Sew-On	High Year Of Tenure (HYT)
Basic Military Training School				
Apprentice Technical School (3-Skill Level)	Amn A1C	6 months 16 months		
Upgrade To Journeyman (5-Skill Level) - Minimum 15 months on-the-job training. - Complete appropriate CDC. - Sew-on SrA for award of the 5-skill level.	A1C SrA	3 years	28 months	10 Years
Airman Leadership School (ALS) - Must be a SrA with 48 months time in service or be a SSgt selectee. - Resident graduation is a prerequisite for SSgt sew-on (Active Duty Only).	Trainer - Must attend the formal AF Training course and be appointed by Commander. - Trainers must be qualified and certified on tasks to be trained.			
Upgrade To Craftsman (7-Skill Level) - Minimum rank of SSgt. - Minimum 12 months OJT. - Complete appropriate CDC.	SSgt	7.5 years	3 years	20 Years
Retrainees: - Minimum 9 months for 5 level upgrade. - Minimum 12 months for 7 level upgrade.	Certifier - SSgt with a 5 skill-level or civilian equivalent. - Attend formal AF Certifier course and be appointed by Commander. - Be a person other than the trainer (Core and Critical tasks only).			
Noncommissioned Officer Academy (NCOA) - Must be a TSgt or TSgt selectee. - Resident graduation is a prerequisite for MSgt sew-on (Active Duty Only).	TSgt	12.5 years	5 years	22 Years
USAF Senior NCO Academy (SNCOA) - Must be a SMSgt, SMSgt selectee or a MSgt who has been selected to attend based on promotion scores. - Resident graduation is a prerequisite for CMSgt sew-on (Active Duty Only).	MSgt	16 years	8 years	24 Years
Upgrade To Superintendent (9-Skill Level) - Minimum rank of SMSgt.	SMSgt	19.2 years	11 years	26 Years
	CMSgt	21.5 years	14 years	30 years



4A2X1 CAREER FIELD PATH BIOMEDICAL EQUIPMENT TECHNICIAN

**ENLISTED CAREER PROGRESSION CHART
BIOMEDICAL EQUIPMENT TECHNICIAN (AFSC 4A2X1)**

6 Weeks	42 Weeks – 1 Year	3 Years	4 – 15 Years	15 – 30 Years
TRAINEE	APPRENTICE	JOURNEYMAN	CRAFTSMAN	SUPERINTENDENT
1-Level 4A211	3-Level 4A231	5-Level 4A251	7-Level 4A271	9-Level 4A291/4A200
		ALS	NCO Academy	Senior NCO Academy
Basic Military Training	J3ABR4A231 005 Biomedical Equipment Apprentice Course	Supplemental Courses, CCAF Degree, Bachelors Degree, Masters Degree, AAMI Certification, etc.		
			Specialized Commercial Schools: Lasers, Patient Monitoring Systems, Ultrasound, Anesthesia Systems, X-ray Systems, CT Scanners, etc.	
		Specialized Military Supplemental Courses: 882 TRG, Sheppard AFB, Texas: J3AZR4A271 017, Medical Facility Management J3AZR4A271 019, Advanced Field Medical Systems J3AZR4A271 021, Computer Based Medical Systems J3AZR4A271 022, Advanced Medical Laboratory Systems J3AZR4A271 023, Advanced Medical Systems J3AZR4A271 024, Advanced Diagnostic Imaging Systems J3AZR4A271 025, Imaging Procurement And Acceptance J3AZR4A271 026, Telemedicine J3AZR4A271 027, Biomedical Equipment Management		
		Associate Degree, Biomedical Equipment Technology (CCAF) Bachelors Degree, Masters Degree, Management/Engineering preferred International Certification		

5. Community College of the Air Force (CCAF). Enrollment in CCAF occurs automatically upon completion of basic military training. *Off-duty education is a personal choice but highly encouraged.* CCAF provides the opportunity to obtain an Associate in Applied Science Degree. In addition to the associate degree program, CCAF offers the following:

5.1. Occupational Instructor Certificate. Upon completion of instructor qualification training consisting of a basic instructor course, supervised practice teaching, CCAF instructors who possess an associate degree or higher may be nominated by their school commander/commandant for certification as an Occupational Instructor. This certificate qualifies an individual to teach in vocational type schools in numerous states.

5.2. Trade Skill Certification. When a CCAF student separates or retires, a trade skill certification is awarded for the primary occupational specialty. The College uses a competency based assessment process for trade skill certification at one of four proficiency levels: Apprentice, Journeyman, Craftsman/Supervisor, or Master Craftsman/Manager. All are transcribed on the CCAF transcript.

5.3. CCAF Course Description. This section contains the codes and descriptions of the CCAF courses that are segments of Air Force-conducted courses. CCAF courses are identified by seven character codes, such as BET 1320. The three letters identify the course area (in the example, BET represents Biomedical Equipment Technology) while the four digits identify the specific course within that area. CCAF courses are subject to increases/decreases of credit hour value because they are continually evaluated and revised as necessary to meet the immediate needs of the Air Force. The credit hours entered on the CCAF transcript reflect the value of the courses when they were completed. The CCAF transcript is the only official and reliable indicator of an airman's accomplishments in terms of courses completed and semester hours earned. Questions regarding CCAF courses should be directed to CCAF/AYX, 130 W Maxwell Ave, Ste 33, Maxwell AFB, AL 36112-6613; (334)953-2874/2875 or DSN 493-2874/2875; Fax (334)953-5231/2980 or DSN 493-5231/2980.

5.3.1. **BET 1318, Biomedical Equipment Maintenance Management.** Installation and troubleshooting of hydrotherapy, x-ray, environmental, vision measurement, and shock therapy systems. Safety procedures emphasized.

5.3.2. **BET 1319, Therapeutic Support Equipment Systems.** Theory, application, restoration, rectification, and renovation of electrical and mechanical apparatus used for therapeutic procedures; includes dental operating, ultrasonic, electrosurgical, anesthesia, and inhalation therapy systems.

5.3.3. **BET 1320, Therapeutic Support Equipment Systems II.** Theory, application, restoration, rectification, and renovation of electrical and mechanical apparatus used for therapeutic procedures; includes infusion devices, diathermy, infant incubator/isolette, dental laboratory, suction and pressure, sterilization, ultrasonic cleaning, and surgical/obstetrical suite environmental systems.

5.3.4. **BET 1323, Diagnostic Support Radiographic Systems.** Radiation physics and safety; design/maintenance of advanced diagnostic radiographic systems; and inspection, operation, troubleshooting, repair, and testing procedures applicable to medical/dental radiographic systems.

5.3.5. **BET 1324, Physiological Monitoring Systems.** Operation, inspection, analysis, and repair of hearing measurement, cardiac measurement, and other physiological monitoring systems.

5.3.6. **BET 1325, Field Equipment Support Systems.** Maintenance, operation, and inspection of power production, distribution, lighting, forced air, heat/air-conditioning, and refrigeration/steam generation systems.

5.3.7. **BET 2308, Advanced X-Ray Principles.** Principles and procedures used for installation, troubleshooting, repair, and calibration of x-ray systems. Includes image intensifier principles, closed-circuit television, dental x-ray, and three-phase radiologic systems.

5.3.8. **BET 2318, Installation and Maintenance of X-Ray Systems.** Practicum in setting up, troubleshooting, and repair of advanced radiologic systems, image intensifiers with closed-circuit television, and automatic collimator systems.

5.3.9. **BET 2322, X-Ray Systems Technology.** Preinstallation surveys; procurement, installation, and calibration of x-ray systems; radiographic and fluoroscopic principles; and Bureau of Radiological Health Compliance testing.

5.4. **Degree Requirements:** Upon completion of basic military training and assignment to an AFS, active duty, ANG, and AFRES enlisted members may be placed in the degree program designed for their career field. The following are examples of degree requirements:

Occupational Specialty 4A2X1
Degree Requirements
The journeyman (5) level must be held at the time of program completion.

Technical Education	
(24 semester hours) A minimum of 12 SHs of technical core subjects or courses must be applied and the remaining semester hours applied from technical core or technical elective subjects or courses. Requests to substitute comparable courses or to exceed specified semester hour values in any subject or course must be approved in advance.	
Technical Core	Max Semester Hours
Biomedical Equipment Maintenance Management	12
CCAF Internship	18
Diagnostic Support Equipment Systems	12
Diagnostic Support Radiographic Systems	12
Physiological Monitoring Systems	9
Therapeutic Support Equipment Systems	12

Technical Electives	<i>Max Semester Hours</i>
Acceptance/Certification Procedures for Medical X-Ray Systems	3
Basic Electronics Theory/Application	6
Digital Techniques	6
Electronic Circuit Design/Analysis	6
Enlisted Professional Military Education	6
Human Anatomy and Physiology	4
Installation and Maintenance of X-Ray Systems	9
Management of Biomedical Equipment Programs	3
Medical Readiness	3
Medical Terminology	3
Microprocessor Technology	6
X-Ray Systems Technology	3
Leadership, Management & Military Studies	
(6 semester hours) Professional military education, civilian management courses accepted in transfer and/or by testing credit.	
Physical Education (4 Semester Hours)	
General Education	
(15 semester hours) Applicable courses must meet the criteria for application of courses to the general education requirement and agree with the definitions of applicable courses starting on page 20 of the CCAF catalog.	

<i>Subject/Courses</i>	<i>Semester Hours</i>
Oral Communication	3
Speech	
Written Communication	3
English Composition	
Mathematics	3
Intermediate algebra or a college-level mathematics course satisfying delivering institution's mathematics graduation requirement-if an acceptable mathematics course applies as technical or program elective, you may substitute a natural science course for mathematics.	
Social Science	3
Anthropology, archaeology, economics, geography, government, history, political science, psychology, sociology	
Humanities	3
Fine arts (criticism, appreciation, historical significance), foreign language, literature, philosophy, religion	

Program Elective
(15 semester hours) Courses applying to technical education, LMMS or general education requirements; natural science courses meeting general education requirement application criteria; foreign language credit earned at Defense Language Institute or through Defense Language Proficiency Test; maximum 6 SHs of CCAF degree-applicable technical course credit otherwise not applicable to program of enrollment.

5.5. For further information on CCAF degree programs visit the Community College of the Air Force website at www.au.af.mil/au/ccaf.

6. Civilian Certification. To become a certified Biomedical Equipment Technician (CBET), upon completion of the Biomedical Equipment Apprentice course and two years experience, contact the International Certification Commission (ICC) for Clinical Engineering and Biomedical Technology, 3330 Washington Blvd, Suite 400, Arlington VA 22201-4598; (703)525-4890, ext 207, or at the web site www.aami.org. The ICC also offers a candidacy program that permits course graduates to take the written examination while obtaining the required work experience for full standing as a CBET. *Civilian certification is not mandatory but highly encouraged.*

SECTION C, SKILL LEVEL TRAINING REQUIREMENTS

1. Purpose. Skill levels in this career field are defined in terms of tasks and knowledge requirements. This section outlines the specialty qualification requirements for each skill level in broad, general terms, and establishes the mandatory requirements for entry, award, and retention of each skill level.

1.1. Apprentice (3-Skill Level) Specialty Qualifications:

1.1.1. *Knowledge.* Knowledge is mandatory of medical maintenance procedures, general characteristics of biomedical equipment sections, and organization of medical units. Knowledge is desirable of operating automated data processing equipment, test equipment, computer terminals, management, and data automation.

1.1.2. *Education.* Completion of high school or general educational development equivalency with courses in algebra, trigonometry, mechanics, mechanical theory, general sciences, anatomy, or biology is desirable.

1.1.3. *Training.* Completion of the basic Biomedical Equipment Apprentice course is mandatory for the award of this AFSC. Completion of a Computer Directed Training System Course for Computer Operator is desirable.

1.1.4. *Other.* Ability to operate oscilloscopes and multimeters is desirable. Normal color vision, as defined in AFI 48-123, Medical Examinations and Standards, is mandatory for entry into this AFSC. Minimum age for duty in and award of this AFSC is 18 years.

1.2. Journeyman (5-Skill Level) Specialty Qualifications:

1.2.1. *Knowledge.* Knowledge is mandatory of physiology, electrical, electronic, mechanical, optical, hydraulic, pneumatic, and radiation principles that apply to biomedical equipment and support systems; using and interpreting schematics; technical specification data; accepted national safety and accrediting standards, blueprints, and Air Force publications; equipment systems application in medicine; and medical safety procedures.

1.2.2. *Education.* Completion is desirable of high school courses in management, algebra, trigonometry, basic electronic data processing, electronics, chemistry, physics, bookkeeping and accounting, and business administration.

1.2.3. *Training.* Completion of the Biomedical Equipment Apprentice Course is mandatory. Qualification at the 5-skill level is awarded only after successful completion of the 4A251A and 4A251B CDC.

1.2.4. *Experience.* Experience is mandatory in functions such as installing, inspecting, or repairing biomedical equipment and support systems. 15 months of OJT upgrade training is required; 9 months of upgrade training is required for retrainees.

1.3. Craftsman (7-Skill Level) Specialty Qualifications:

1.3.1. *Knowledge.* Knowledge is mandatory of biomedical equipment maintenance procedures, general characteristics of biomedical equipment sections, organization of medical units, and maintenance management. A strong background in physiology, electrical, electronic, electromechanical, mechanical, optical, hydraulic, pneumatic, and radiation principles that apply to biomedical equipment support systems; using and interpreting national safety and accrediting standards, blueprints, schematics, and Air Force publications; equipment systems application in medicine; and medical safety procedures. Knowledge is desirable of operating automated data processing equipment, test equipment, computer terminals, computer management, and data automation.

1.3.2. *Education.* Completion is desirable of college courses in management, college algebra, basic electronic data processing, electronics, chemistry, physics, bookkeeping and accounting, and business administration. An Associate degree in Biomedical Equipment Technology is highly recommended. Continuing education should be provided through the Association for the Advancement of Medical Instrumentation (AAMI), the Radiological Society of North America (RSNA), and through the American Society for Hospital Engineering (ASHE).

1.3.3. *Training.* Completion of the basic Biomedical Equipment Apprentice Course is mandatory for the award of this AFSC. Completion of a computer repair course is desirable. Completion of Air Force supplemental Biomedical Equipment courses and commercial courses are highly recommended and should be aggressively pursued. Professional certification is desirable through the International Certification Commission.

1.3.4. *Other.* Ability to operate oscilloscopes and multimeters, and knowledge of computers and software is desirable.

1.3.5. *Experience.* Qualification is mandatory as a Biomedical Equipment Journeyman. Also, experience is mandatory in performing functions such as installing, calibrating, repairing, or modifying biomedical equipment and support systems. 12 months of OJT upgrade training is required; 12 months of OJT upgrade training is also required for retrainees.

1.4. **Superintendent (9-Skill Level) Specialty Qualifications:**

1.4.1. *Knowledge.* Knowledge is mandatory of biomedical equipment maintenance procedures, general characteristics of biomedical equipment sections, maintenance management, and organization of medical units. A strong knowledge of physiology; electrical, electronic, electromechanical, mechanical, optical, hydraulic, pneumatic, and radiation principles that apply to biomedical equipment systems; using and interpreting national safety and accrediting standards, blueprints, schematics, and Air Force publications; biomedical equipment systems application in medicine; and medical safety procedures. Knowledge is desirable in the operation of automated data processing equipment, test equipment, computer terminals, management, and data automation.

1.4.2. *Education.* Completion is desirable of college courses in management, algebra, basic electronic data processing, electronics, chemistry, physics, bookkeeping and accounting, and business administration. A Bachelors Degree in related areas of study is highly recommended.

1.4.3. *Training.* Completion of the Biomedical Equipment Apprentice Course is mandatory for the award of this AFSC. Completion of a computer repair course is desirable. Completion of Air Force supplemental Biomedical Equipment Technician courses and commercial courses is highly recommended and should be aggressively pursued.

1.4.4. *Other.* Ability to operate oscilloscopes and multimeters, and knowledge of computers and software is desirable.

1.4.5. *Sew on of SMSgt.*

1.4.6. *Experience.* Qualification is mandatory as a Biomedical Equipment Technician Supervisor and Biomedical Equipment Craftsman. Also, experience is mandatory in managing and directing all biomedical equipment functions.

SECTION D, RESOURCE CONSTRAINTS

1. Purpose. This section identifies known resource constraints that preclude optimal/desired training from being developed or conducted, including information, such as cost and manpower. Narrative explanations of each resource constraint and an impact statement describing what effect each constraint has on training are included. Resource constraints will be, as a minimum, reviewed and updated annually.

2. Training Constraints.

2.1. Initial Skills Training. The Apprentice Course will require time to implement new lessons proposed under the new training standard. OPR: 384 TRS/XXEB (382 TRS/XYBB after 1 May 02); ECD: June 2003.

2.2. CDC Training. The 5-level CDCs ("A" set) will be required immediately after graduation of the first class under the new STS. OPR: 384 TRS/XXEA (382 TRS/XYBA after 1 May 02); ECD: October 30, 2003.

2.3. Advanced Skills Training. The following courses are on line with the exception of the J3AZR4A271 019 Field Medical Systems Course. This course is currently awaiting equipment to bring it on line. Once the equipment arrives it will take time to develop before the first class can be taught so the ECD is subject to change. OPR: 384 TRS/XXEB (382 TRS/XYBB after 1 May 02); ECD: April 2002.

- (1) J3AZR4A271 017, Medical Facility Management**
- (2) J3AZR4A271 019, Advanced Field Medical Systems**
- (3) J3AZR4A271 021, Computer Based Medical Systems.**
- (4) J3AZR4A271 022, Advanced Medical Laboratory Systems.**
- (5) J3AZR4A271 023, Advanced Medical Systems.**
- (6) J3AZR4A271 024, Advanced Diagnostic Imaging Systems.**
- (7) J3AZR4A271 025, Imaging Procurement and Acceptance.**
- (8) J3AZR4A271 026, Telemedicine.**
- (9) J3AZT4A271 027, Biomedical Equipment Management Systems.**

SECTION E, TRANSITIONAL TRAINING GUIDE

Note: There is currently no requirement for a transitional training guide. This area reserved.

SECTION F, AIR RESERVE COMPONENT UNIQUE REQUIREMENTS

1. Purpose. To provide ARC Biomedical Equipment technicians (BMET) apprentices (non-prior service and re-trainees) with an opportunity to receive the additional training days necessary to become proficient in maintaining biomedical equipment that is identified in this STS as a core task. This section applies to all BMET's assigned to all Air Force Reserve and Air National Guard medical and aeromedical evacuation squadrons (referred to, hereafter, as medical unit).

1.1. Qualification (also referred to as proficiency or seasoning) training requirements:

1.1.1. Qualification training days are available for ARC BMET apprentices to satisfactorily initiate and complete the core task training requirements identified in this STS.

1.1.2. Upon completion of the Biomedical Equipment Apprentice Course, J3ABR4A231 005, all BMET apprentices will be assigned to a Medical Equipment Repair Center (MERC) for up to 120 days (minimum of 90 days) to acquire proficiency in performing the core tasks required to successfully achieve the 5-skill level according to Air Force upgrade training guidelines.

1.1.3. For optimal results, this follow-on training should commence immediately following graduation from the Biomedical Equipment Apprentice Course.

1.2. Advanced planning is required to ensure the apprentice receives qualification training immediately upon graduating from the Biomedical Equipment Apprentice Course. With concurrence from the ARC medical unit commander, the section BMET supervisor, in conjunction with the senior air reserve/health technician, must contact the regional MERC to arrange follow-on training for the newly assigned BMET trainee (4A2X1). This process should also be coordinated with the Guard/Reserve liaison at Sheppard AFB. The MERC may recommend the apprentice receive upgrade training at a qualified AF MTF if extenuating circumstances (i.e., lack of qualified available staff, committed to supporting contingency operations, etc) fail to permit the apprentice from receiving the training at the MERC. (A qualified MTF is defined as a facility that possesses the time, equipment, and expertise necessary to train the apprentice on all core tasks as outlined in this STS.) Active duty personnel must ensure that an experienced BMET supervisor is assigned to assist the apprentice in gaining the desired confidence and proficiency. The training schedule must be finalized prior to the Biomedical Equipment Apprentice Course start date.

1.3. Ship the apprentice's BMET toolkit to the Guard or Reserve liaison at Sheppard AFB. The BMET apprentice requires a toolkit to perform follow-on qualification training at the scheduled regional MERC. (NOTE: All BMETs in the active, guard, and reserve require an AF standard issue toolkit to perform duties during peacetime and contingency operations. Active duty BMETs are issued a toolkit upon graduating from the apprentice course. ARC BMETs are issued a toolkit from their unit of assignment.) Four weeks before the apprentice graduates from the apprentice course, the senior air reserve/health technician will ship the BMET tool kit to the Guard or Reserve liaison depending upon which component the apprentice is assigned to. The Reserve liaison can be reached at DSN 736-6707; the Guard liaison can be reached at DSN 736-6812. The address is as follows:

Air National Guard (or Air Force Reserve) Liaison
319 K Ave, bldg. 1638
Sheppard AFB, TX 76311

1.4. To ensure continuity between BMET resident training and qualification training at the regional MERC, the apprentice will forward a copy of his or her technical school certificate (AF Form 1256) to his or her unit of assignment. The ARC unit of assignment will then initiate upgrade action using AF Form 2096 to award the 3-skill level and enter the apprentice in the appropriate training status code.

1.5. The apprentice BMET's AFSC upgrade training requirements may be accomplished at his or her civilian hospital under the direct supervision of an experienced, qualified BMET supervisor. If the apprentice BMET is employed as a BMET in the civilian sector, has immediate access to the same types of biomedical equipment identified in this STS, and does not receive the appropriate number of qualification training days necessary to successfully complete all core tasks, then this training may be accomplished at the apprentice's civilian hospital under the direct supervision of a qualified BMET. The apprentice must present the supervisor with his or her

original copy of the Biomedical Equipment Technician STS. As the required core tasks are successfully completed, the supervisor is authorized to sign-off on the STS indicating that the apprentice has satisfactorily completed each core task.

1.6. The ARC medical Reserve unit may submit a waiver to bypass the above qualification training if proficiency days are unavailable. In the case where qualification training days are unavailable at the base and the headquarters, the proficiency training may be waived until such time that days become available and the apprentice has an opportunity to train on the equipment identified in this STS. The waiver package must be sent to the AF 4A2 Career Field Manager, Air Force Medical Logistics Office, Ft. Detrick, MD through HQ AFRC/ANG Biomedical Equipment Functional Manager. The AFRC Functional Manager can be reached at DSN 497-1905; the ANG Functional Manager can be reached at DSN 278-8577.

PART II

SECTION A, SPECIALTY TRAINING STANDARD

1. Implementation. Implementation of this STS, technical training provided by the Air Education and Training Command, starts with class number 2003015 entering June 16, 2003 and graduating April 20, 2004 for course J3ABR4A231 005.

2. Purpose. As prescribed in AFI 36-2201, this STS:

2.1. Lists in column 1 (Task, Knowledge, and Technical Reference) the most common tasks, knowledge, and technical references (TR) necessary for airmen to perform duties in the 3-, 5-, and 7-skill level. Column 2 (core) identifies the core tasks.

2.2. Provides certification for OJT. Column 3 is used to record completion of tasks and knowledge training requirements. Use automated training management systems to document technician qualifications, if available. Task certification must show a certification/completed date.

2.3. Contains the proficiency code key (columns 4A, 4B and 4C) used to indicate the level of training and knowledge provided by resident training and the career development courses.

2.4. Becomes a job qualification standard (JQS) for on-the-job training when placed in AF Form 623, *On-The-Job Training Record*, and used according to AFI 36-2201, *Developing, Managing, and Conducting Training*. When used as a JQS, the following requirements apply:

2.4.1. Documentation. Document and certify completion of training. Identify duty position requirements by circling the subparagraph number next to the task statement. As a minimum, complete the following columns in the CFETP Part II: Training Completed, Trainee Initials, Trainer Initials, Certifier Initials (if applicable). An AFJQS may be used in lieu of Part II of the CFETP only upon approval of the AFCFM. NOTE: The AFCFM may supplement these minimum documentation procedures as needed or deemed necessary for their Career Field.

2.5. Converting from old document to CFETP. Use the new CFETP to identify and certify all past and current qualifications. For those tasks previously certified and required in the current duty position, evaluate current qualifications and, when verified, recertify using current date as completion date and enter certifier's initials. For previous certification on tasks not required in the current duty position, carry forward only the previous completion dates. If and when these tasks become a duty position requirement, recertify with current date and certifier's initials.

2.6. Documenting Career Knowledge. When a CDC is not available, the supervisor identifies STS training references that the trainee requires for career knowledge and ensures, as a minimum, that trainees cover the core requirements as outlined in the CFETP Part II and any mandatory items in AFMAN 36-2108, *Enlisted Classification*. For two-time CDC course exam failures, supervisors identify all STS items corresponding to the areas covered by the CDC. The trainee completes a study of STS references, undergoes evaluation by the task certifier, and receives certification on the STS. NOTE: Supervisors must document Career Knowledge prior to submitting a CDC waiver.

2.7. Decertification and Recertification. When an airman is found to be unqualified on a task previously certified for his or her position, the supervisor lines through the previous certification or deletes previous certification when using automated system. Appropriate remarks are entered on the AF Form 623A, *On-The-Job Training Record Continuation Sheet*, as to the reason for decertification. The individual is recertified (if required) either by erasing the old entries and writing in the new or by using correction fluid (if the entries were made in ink) over the previously certified entry.

2.8. Training Standard. Trainees are trained, evaluated, and certified to the go/no go level. Go means the individual can perform the task without assistance and meet requirements for accuracy, timeliness, and correct use of procedures. Supervisors and superintendents will manage this process by assessing 4A251 qualifications.

2.9. Trainers must be certified in the task to be trained, be recommended by the supervisor, appointed by the commander, and complete a formal trainer course.

2.10. Certifiers must be at least a SSgt, be certified in the task being evaluated, appointed by the commander, be someone other than the trainer, and complete a formal certifier course. Possession of at least a 7-skill level in the same AFSC is desired, but not required.

2.11. Is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Specialty Knowledge Tests (SKTs) are developed at the USAF Occupational Measurement Squadron by senior NCOs with extensive practical experience in their career fields. The tests sample knowledge of STS subject matter areas judged by test development team members as most appropriate for promotion to higher grades. Questions are based upon study references listed in the WAPS catalog. Individual responsibilities are in chapter 1 of AFI 36-2605, Air Force Military Personnel Testing System. WAPS is not applicable to the Air National Guard.

3. Recommendations. Report unsatisfactory performance of individual course graduates to 384 TRS/XXEA (382 TRS/XYBA after 1 May 02), 939 Missile Road, Sheppard AFB TX 76311. Reference specific STS paragraphs when forwarding reports.

4. Problems. Identify inadequacies and recommended changes to this training standard through channels to 882 TRG/TTS, 939 Missile Rd, Sheppard AFB, TX 76311-2245, use the Customer Service Line (CSIL), DSN 736-2385, or email CSIL.882@sheppard.af.mil to report your findings.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

**PAUL K. CARLTON, JR
Lieutenant General, USAF, MC
Surgeon General**

Name Of Trainee		
Printed Name (<i>Last, First, Middle Initial</i>)	Initials (Written)	SSAN
Printed Name Of Certifying Official And Written Initials		
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	

QUALITATIVE REQUIREMENTS

Proficiency Code Key		
	Scale Value	Definition: The individual
Task Performance Levels	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (Extremely Limited)
	2	Can do most parts of the task. Needs only help on hardest parts. (Partially Proficient)
	3	Can do all parts of the task. Needs only a spot check of completed work. (Competent)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (Highly Proficient)
*Task Knowledge Levels	a	Can name parts, tools, and simple facts about the task. (Nomenclature)
	b	Can determine step by step procedures for doing the task. (Procedures)
	c	Can identify why and when the task must be done and why each step is needed. (Operating Principles)
	d	Can predict, isolate, and resolve problems about the task. (Advanced Theory)
**Subject Knowledge Levels	A	Can identify basic facts and terms about the subject. (Facts)
	B	Can identify relationship of basic facts and state general principles about the subject. (Principles)
	C	Can analyze facts and principles and draw conclusions about the subject. (Analysis)
	D	Can evaluate conditions and make proper decisions about the subject. (Evaluation)
<p>Explanations</p> <p>* A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Example: b and 1b)</p> <p>** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task, or for a subject common to several tasks.</p> <p>- This mark is used alone instead of a scale value to show that no proficiency training is provided in the course or CDC.</p> <p>X This make is used alone in course columns to show that training required but not given due to limitations in resources.</p> <p><i>NOTE: All tasks and knowledge items shown with a proficiency code are trained during war time.</i></p>		

This Block Is For Identification Purposes Only		
Name Of Trainee		
Printed Name (<i>Last, First, Middle Initial</i>)	Initials (Written)	SSAN
Printed Name Of Certifying Official And Written Initials		
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	

QUALITATIVE REQUIREMENTS

Behavioral Statement STS Coding System	
Code	Definition
K	Subject Knowledge Training - The verb selection identifies the individual's ability to identify facts, state principles, analyze, or evaluate the subject
P	Performance Training - Identifies that the individual has performed the task to the satisfaction of the course; however, the individual may not be capable of meeting the filed requirements for speed and accuracy.
pk	Performance Knowledge Training - The verb selection identifies the individual's ability to relate simple facts, procedures, operating principles, and operational theory for the task.
-	No training provided in the course or CDC.
X	Training is required but not provided due to limitations in resources.
Each STS element is written as a behavioral statement. The detail of the statement and verb selection reflects the level of training provided by resident training and career development courses.	

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
1. CAREER LADDER PROGRESSION TR: AFI 36-2101 and AFI 36-2108									
1.1. The Airmen Career Ladder and Educational Opportunities	-						-	-	-
1.2. Progression in Career Ladder 4A2X1	-						-	-	-
1.3. Duties of AFSC 4A2X1									
1.3.1. AFSC 4A271, 4A291, and CEM Code 4A2	-						A	-	-
1.3.2. AFSC 4A231 and 4A251	-						A	-	-
1.4. USAF Medical Service									
1.4.1. Mission	-						A	-	-
1.4.2. Organization	-						A	-	-
1.4.3. Function	-						A	-	-
2. PROFESSIONAL and PATIENT RELATIONS									
2.1. Professional Relations with Patients, Customers, and Medical Staff	-						B	B	C
2.2. Professional Standards of Ethics	-						B	B	C
2.3. Standards of Conduct	-						B	B	-
2.4. Primary Care Optimization	-						A	A	-
3. ELECTRONIC FUNDAMENTALS and APPLICATIONS TR: Grob Basic Electronics by Bernard Grob									
3.1. Direct Current (DC)	-						3c	C	-
3.2. Alternating Current (AC) Circuits	-						3c	C	-
3.3. Solid State Devices	-						3c	C	-
3.4. Integrated Circuits/Devices	-						3c	C	-
3.5. Digital Techniques	-						3c	C	-
3.6. Microprocessors									
3.6.1. Performance Characteristics	-						C	C	-
3.6.2. Isolate Malfunctions	-						2b	-	-
3.7. Computers TR: Computers, The Users Perspective									
3.7.1. Central Processing Units (CPU)	-						C	C	-
3.7.2. Input/Output Devices	-						C	C	-
3.7.3. Operating Systems	-						2b	C	-
3.7.4. Isolate Malfunctions	-						3c	-	-
3.7.5. Networks	-						B	B	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
3.8. Motors	-						3c	C	-
3.9. General Troubleshooting Techniques	-						3c	C	-
4. BIOMEDICAL PRINCIPLES TR: Space Labs Biophysical Measurement Reference Volumes									
4.1. Anatomy and Physiology TR: BodyWorks 4.0, Classic/ Limited Ed; <i>Human Anatomy and Physiology</i>	-						B	B	-
4.2. Medical Terminology	-						A	A	-
4.3. Applications of Transducers	-						B	B	-
4.4. Applications of Electrodes	-						B	B	-
5. PHYSICS PRINCIPLES APPLICABLE to BIOMEDICAL EQUIPMENT MAINTENANCE TR: <i>Physics for the Health Sciences; Biomedical Instrumentation and Measurement</i>									
5.1. Hydraulic	-						A	B	-
5.2. Mechanical	-						A	B	-
5.3. Optical	-						A	B	-
5.4. Pneumatic	-						A	B	-
5.5. Ionizing Radiation	-						A	B	-
5.6. Non-Ionizing Radiation	-						A	B	-
5.7. Acoustics	-						A	B	-
5.8. Laser	-						A	B	-
5.9. Ultrasound	-						A	B	-
5.10. Steam	-						A	B	-
6. FACILITY/EQUIPMENT INTERFACE TR: AFOSHSTD; NFPA 70, 99, 101; IEEE 100, 602; UL 943, 1022, 1436									
6.1. Electrical Distribution System									
6.1.1. Single Phase	-						A	C	-
6.1.2. Three Phase	-						A	C	-
6.1.3. Isolated	-						A	C	-
6.1.4. Emergency	-						A	C	-
6.1.5. Grounding	-						A	C	-
6.1.6. Protective Devices	-						A	C	-
6.1.7. Surge Protectors	-						A	C	-
6.1.8. Transformers	-						A	C	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
6.1.9. Wire Sizing	-						A	C	-
6.2. Central Vacuum Systems	-						-	B	-
6.2.1. Dental Central Vacuum Systems	-						-	A	-
6.3. Central Gas Systems	-						-	B	-
6.4. Plumbing	-						-	A	-
6.5. Environmental Control Systems	-						-	A	-
6.6. Structural Requirements	-						-	A	-
6.7. Architectural and Engineering Drawings	-						-	B	-
7. AIR FORCE OCCUPATIONAL SAFETY and HEALTH (AFOSH) PROGRAM TR: AFI 41-201, 91-301, 91-302, 48-125, 48-148; AFD 91-3, 48-1; AFOSHSTD 48-8, 48-139, 91-5, 91-8, 91-12, 91-22, 91-31, 91-32, 91-43, 91-44, 91-45, 91-56, 91-66, 91-67, 91-68; OSHA CD-ROM									
7.1. Principles of General Safety	-						A	B	C
7.2. Safety Precautions during Job Performance	-						B	B	C
7.3. Accident Reporting	-						A	B	C
7.4. Hazard Reporting TR: Food and Drug Administration (FDA); ECRI, Air Force Medical Logistics Office (AFMLO); Defense Supply Center Philadelphia (DSCP)	-						A	B	C
7.5. Hospital Safety Practices Pertaining to TR: AFI 32-2001; AFOSHSTD 91-8; NFPA 99, 101; ANSI Z88.2									
7.5.1. Biological Hazards TR: 29 CFR, Part 1910.1047; Federal Register 49(122) 54(23042)	-						A	C	-
7.5.2. Chemical Hazards TR: NFPA Fire Protection Guide to Hazardous Materials	-						A	C	-
7.5.3. Fire Hazards TR: NFPA 30	-						A	B	-
7.5.4. Laser Hazards TR: ANSI Z136.1, Z136.3; AFOSHSTD 48-139, 91-45	-						A	B	-
7.6. Hazards Associated with Equipment and its Interface with the General Hospital Environment									
7.6.1. Electrical Shock Hazards TR: AFI 41-203; NFPA 70, 77, 99; ANSI C2	-						B	C	-
7.6.2. Ionizing Radiation Hazards TR: NCRP 59, 71, 91, 102, 105, 107; AFI 48-148	-						B	C	-
7.6.3. Flammable Gas Hazards TR: AFOSHSTD 91-8, NFPA 30, 53M, 99	-						B	B	-
7.6.4. Compressed Gas Hazards TR: AFOSHSTD 91-8; NFPA 53M, 99; CGA AV-4, C-6, E-7, G-4, G-4.1, P-1, V-5	-						B	C	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
7.6.5. Noise Hazards TR: AFOSHSTD 48-19	-						A	C	-
7.6.6. Occupationally Hazardous Gases TR: 29 CFR Part 1910.1047; CGA P-2	-						A	B	-
7.6.7. Inhalation Anesthetizing Location Hazards TR: AFOSHSTD 91-8, NFPA 99	-						A	B	-
7.6.8. Mechanical Hazards TR: AFOSHSTD 91-66	-						B	B	-
7.6.9. Battery Hazards TR: AFOSHSTD 91-66	-						B	B	-
8. TOOLS, HARDWARE, TEST EQUIPMENT and TECHNIQUES TR: Manufacturer's Literature; AFOSHSTD 91-5, 91-8, 91-12, 91-43; OSHA CD-ROM; TO 00-25-234									
8.1. Use Hand Tools	5						2b	b	-
8.2. Use Power Tools	5						2b	b	-
8.3. Repair									
8.3.1. Solder Electronics	5						3c	c	-
8.3.2. Plumbing Connections									
8.3.2.1. Mechanical	-						2b	b	-
8.3.2.2. Soldered	-						2b	b	-
8.3.3. Replace Hardware/Subassemblies	-						2b	-	-
8.4. Use Electronic Measurement Instruments									
8.4.1. Oscilloscope to									
8.4.1.1. Analyze Waveforms	5						3c	c	-
8.4.1.2. Measure Voltage	5						3c	c	-
8.4.1.3. Measure Frequency	5						3c	c	-
8.4.2. Multimeter to Measure									
8.4.2.1. Voltage	5						3c	c	-
8.4.2.2. Current	5						3c	c	-
8.4.2.3. Resistance	5						3c	c	-
8.5. Use Logic Clips and Probes	-						2b	-	-
8.6. Measure									
8.6.1. Pressure	-						2b	-	-
8.6.2. Temperature	-						2b	-	-
8.6.3. Flow Rate	-						2b	-	-
8.6.4. Revolutions per Minute (RPM)	-						2b	-	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
8.7. Use Safety Analyzer TR: AAMI ES1; NFPA 99	5						3c	c	-
8.8. Function Generator	-						-	b	-
8.9. Operate X-Ray Test Equipment									
8.9.1. Invasive	-						-	-	-
8.9.2. Non-Invasive	-						-	-	-
9. PUBLICATIONS TR: AFI 37-161; AFINDS Series; http://afpubs.hq.af.mil/afpubs.stm									
9.1. Locate and Obtain Air Force Publications TR: http://afpubs.hq.af.mil/afpubs.stm	-						b	-	c
9.2. Locate and Obtain Commercial Publications TR: ECRI Inspection and Preventive Maintenance System; AAMI Essentials Standards; AAMI Standards and Recommended Practices; AHA Medical Equipment Management in Hospitals; AFI 41-201, Manufacturer's Literature	-						b	c	c
10. MEDICAL MATERIAL PROCEDURES TR: AFI 41-201, 41-209									
10.1. Air Force Accountability and Responsibility TR: AFI 23-111	-						B	-	-
10.2. Locate Part Numbers, Prices, and Standard Nomenclature in									
10.2.1. Manufacturer's Parts Manual	-						2b	B	-
10.3. Research Alternative Sources	-						2b	B	-
10.4. Documentation Actions TR: AFMAN 23-110V5; AFCSM 41-230									
10.4.1. Requests	-						B	B	-
10.4.2. Receipts	-						B	B	-
10.4.3. Inventory	-						B	B	C
10.4.4. Storage	-						B	B	-
10.4.5. Issue	-						B	B	-
10.4.6. Disposition	-						B	B	-
10.5. Government Purchasing Card TR: AFI 64-117	-						A	B	C
11. MAINTENANCE ADMINISTRATION TR: AFI 41-201; AFMAN 23-110V5, 33-326; AFCSM 41-230; AFH 33-337; ECRI; FDA									
11.1. Prepare Routine Correspondence	-						-	-	-
11.2. Document Maintenance Actions	5						2b	b	-
11.3. Maintain Historical Maintenance Records	5						2b	b	-
11.4. Maintain Technical Reference Files	5						a	b	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
11.5. Maintain Equipment Data Files	5						1a	b	-
12. MEDICAL EQUIPMENT CONTROL TR: AFI 41-201; ECRI Health Devices									
12.1. Equipment Acquisition TR: AFJI 41-206									
12.1.1. Evaluate Equipment Requests	-						-	b	c
12.1.2. Plan Equipment Installation	-						-	b	c
12.1.3. Coordinate Equipment Installation	-						-	b	c
12.1.4. Supervise Equipment Installation	-						-	b	-
12.1.5. Perform Initial Inspection	5						2b	b	-
12.2. Quality Assurance									
12.2.1. Formulate Equipment Modifications	-						-	b	c
12.2.2. Perform Equipment Modifications	-						-	b	-
12.2.3. Initiate Medical Materiel Complaints TR: https://www.afml.ft-detrick.af.mil/afmlo/fom-e/index.htm	-						1a	b	c
12.2.4. Respond to Hazard Notices	-						b	b	c
12.2.5. Assign Condition Codes	-						b	b	-
12.2.6. Perform Quality Assurance Check	-						-	b	-
12.2.7. Apply Safe Medical Devices Act (SMDA) TR: http://www.fda.gov/cdrh/modact/tracking.pdf	-						-	b	c
12.2.8. Perform Incident Investigations	-						a	b	c
12.3. Recommend Equipment Replacement	-						-	b	c
13. MEDICAL READINESS Initial medical readiness training is provided in the Basic Medical Readiness course conducted at the 882 TRG, Sheppard AFB, Texas. Completed training is documented on the front side of the AETC Form 1256, <i>Certificate of Training</i> , for each course graduate. Continuing/on-going medical readiness training for the individual is the responsibility of each medical unit. The items listed are AFSC specific.									
13.1. Deployable Medical Systems									
13.1.1. Identify Medical Resource Letter	-						A	B	C
13.1.2. Identify Mission Capability Statement	-						A	B	C
13.1.3. Identify Concept of Operation	-						-	B	C
13.2. Tactical/Mobile Electrical Systems									
13.2.1. Power Distribution Systems TR: Manufacturer's Literature, TO 35CA6-1-101 and 35CA-2-2-10-1									

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
13.2.1.1. System Application	-						B	B	-
13.2.1.2. Perform Operational Inspection	-						2b	b	-
13.2.1.3. Perform Organizational Maintenance	-						2b	b	-
13.2.1.4. Install	-						2b	b	-
13.2.2. Power Production (Generators) TR: TO, Manufacturer's Literature									
13.2.2.1. System Application	-						B	B	-
13.2.2.2. Perform Operational Inspection	-						2b	b	-
13.2.2.3. Perform Organizational Maintenance	-						2b	b	-
13.2.2.4. Install	-						2b	b	-
13.2.3. Lighting Systems TR: Manufacturer's Literature									
13.2.3.1. System Application	-						A	A	-
13.2.3.2. Perform Operational Inspection	-						1a	-	-
13.2.3.3. Perform Organizational Maintenance	-						1a	-	-
13.2.3.4. Install	-						1a	-	-
13.3. Tactical Shelters TR: T.O. 35E5-6-11									
13.3.1. DoD ISO Expandable Shelter									
13.3.1.1. System Application	-						1a	A	-
13.3.1.2. Perform Operational Inspection	-						1a	-	-
13.3.1.3. Perform Organizational Maintenance	-						1a	-	-
13.3.1.4. Install	-						a	-	-
13.3.1.5. Prepare Site	-						a	-	-
13.3.2. Tentage									
13.3.2.1. System Application	-						1a	B	-
13.3.2.2. Collectively Protected Versions	-						A	A	-
13.3.2.3. Perform Organizational Maintenance	-						a	-	-
13.3.2.3. Install	-						1a	-	-
13.3.2.4. Prepare for Shipment	-						1a	-	-
13.3.2.5. Prepare Site	-						1a	-	-
13.4. Environmental Control Units (ECU) TR: TO 35B9-163-1									
13.4.1. System Application	-						A	B	-
13.4.2. Collectively Protected Versions	-						A	B	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
13.4.3. Perform Operational Inspection	-						2b	-	-
13.4.4. Perform Organizational Maintenance	-						2b	-	-
13.4.5. Install	-						2b	-	-
13.5. Refrigeration Systems TR: Manufacturer's Literature									
13.5.1. System Application	-						B	B	-
13.5.2. Perform Operational Inspection	-						2b	-	-
13.5.3. Perform Organizational Maintenance	-						2b	-	-
13.5.4. Install	-						2b	-	-
13.6. Steam Generators TR: Manufacturer's Literature									
13.6.1. System Application	-						B	B	-
13.6.2. Perform Operational Inspection	-						2b	-	-
13.6.3. Perform Organizational Maintenance	-						2b	-	-
13.6.4. Install	-						2b	-	-
13.7. Field Communications Equipment TR: TO, Manufacturer's Literature									
13.7.1. System Application	-						A	B	-
13.7.2. Perform Operational Inspection	-						-	-	-
13.7.3. Perform Organizational Maintenance	-						-	-	-
13.7.4. Install/Setup	-							-	-
13.8. Prepare Equipment for War Reserve Materiel (WRM) Storage TR: Manufacturer's Literature	-						a	B	-
14. THERAPUTIC EQUIPMENT SYSTEMS TR: Manufacturer's Literature; AAMI <i>Standards and Recommended Practices</i> ; AHA <i>Medical Equipment Management in Hospitals</i> ; ECRI <i>Inspection and Preventive Maintenance System</i> ; ECRI <i>Health Devices</i> ; NFPA 99; AFI 41-201, 41-203; Air Force Medical Logistics Letter (AFMLL); 21CFR Subchapter I									
14.1. Dental Operating Systems TR: ANSI/ADA 47									
14.1.1. Clinical Application	-						A	B	-
14.1.2. Perform Operational Inspection	5						2b	-	-
14.1.3. RESERVED									
14.1.4. Isolate Malfunctions	5						2b	-	-
14.1.5. Install	-						A	-	-
14.1.6. Maintain Dental Compressor Systems	-						-	A	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
14.2. Ultrasonic Therapy Units TR: 21 CFR Part 1050									
14.2.1. Clinical Application	-						A	B	-
14.2.2. Perform Operational Inspection	-						2b	b	-
14.2.3. RESERVED									
14.2.4. Perform System Calibration/Verification	-						2b	-	-
14.2.5. Isolate Malfunctions	-						2b	-	-
14.3. Electrosurgical Systems TR: AAMI HF 18; ANSI/ADA 44									
14.3.1. Clinical Application	-						A	B	-
14.3.2. Perform Operational Inspection	-						2b	b	-
14.3.3. Perform Preventive Maintenance Inspection	5						2b	-	-
14.3.4. Perform System Calibration/Verification	5						2b	-	-
14.3.5. Isolate Malfunctions	-						2b	-	-
14.4. Anesthesia Systems TR: NFPA 99; ANSI Z79.8 Z79.11; ASTM F1208, F1161, F1101									
14.4.1. Clinical Application	-						A	B	-
14.4.2. Perform Operational Inspection	-						2b	b	-
14.4.3. Perform Preventive Maintenance Inspection	-						2b	-	-
14.4.4. Perform System Calibration/Verification	-						2b	-	-
14.4.5. Isolate Malfunctions	-						2b	-	-
14.5. Volume/Pressure Ventilator TR: NFPA 53M; ASTM F920, F1100, F1101									
14.5.1. Clinical Application	-						A	B	-
14.5.2. Perform Operational Inspection	-						2b	b	-
14.5.3. Perform Preventive Maintenance Inspection	-						2b	-	-
14.5.4. Perform System Calibration/Verification	-						2b	-	-
14.5.5. Isolate Malfunctions	-						2b	-	-
14.6. High Frequency Ventilator									
14.6.1. Clinical Application	-						A	B	-
14.6.2. Perform Operational Inspection	-						-	b	-
14.6.3. Perform Preventive Maintenance Inspection	-						-	-	-
14.6.4. Perform System Calibration/Verification	-						-	-	-
14.6.5. Isolate Malfunctions	-						-	-	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
14.7. Hydrotherapy Unit									
14.7.1. Clinical Application	-						-	B	-
14.7.2. Perform Operational Inspection	-						-	b	-
14.7.3. Perform Preventive Maintenance Inspection	-						-	-	-
14.7.4. Perform System Calibration/Verification	-						-	-	-
14.7.5. Isolate Malfunctions	-						-	-	-
14.8. Dental Ultrasonic Prophylaxis									
14.8.1. Clinical Application	-						A	B	-
14.8.2. Perform Operational Inspection	-						2b	b	-
14.8.3. RESERVED									
14.8.4. RESERVED									
14.8.5. Isolate Malfunctions	-						2b	-	-
14.9. Diathermy Units TR: ANSI C95.1									
14.9.1. Clinical Application	-						-	B	-
14.9.2. Perform Operational Inspection	-						-	b	-
14.9.3. Perform Preventive Maintenance Inspection	-						-	-	-
14.9.4. Perform System Calibration/Verification	-						-	-	-
14.9.5. Isolate Malfunctions	-						-	-	-
14.10. Pneumatic Tourniquets									
14.10.1. Clinical Application	-						-	B	-
14.10.2. Perform Operational Inspection	-						-	b	-
14.10.3. Perform Preventive Maintenance Inspection	-						-	-	-
14.10.4. Perform System Calibration/Verification	-						-	-	-
14.10.5. Isolate Malfunctions	-						-	-	-
14.11. Infant Incubators TR: ANSI II36									
14.11.1. Clinical Application	-						A	B	-
14.11.2. Perform Operational Inspection	-						2b	b	-
14.11.3. Perform Preventive Maintenance Inspection	-						2b	-	-
14.11.4. Perform System Calibration/Verification	-						2b	-	-
14.11.5. Isolate Malfunctions	-						2b	-	-
14.12. Infant Care Centers									

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
14.12.1. Clinical Application	-						A	B	-
14.12.2. Perform Operational Inspection	-						2b	b	-
14.12.3. Perform Preventive Maintenance Inspection	-						2b	-	-
14.12.4. Perform System Calibration/Verification	-						2b	-	-
14.12.5. Isolate Malfunctions	-						2b	-	-
14.13. Infusion Devices TR: AAMI ID26									
14.13.1. Clinical Application	-						A	B	-
14.13.2. Perform Operational Inspection	-						2b	b	-
14.13.3. Perform Preventive Maintenance Inspection	-						2b	-	-
14.13.4. Perform System Calibration/Verification	5						2b	-	-
14.13.5. Isolate Malfunctions	-						2b	-	-
14.14. Hypo/Hyperthermia Systems									
14.14.1. Clinical Application	-						A	B	-
14.14.2. Perform Operational Inspection	-						2b	b	-
14.14.3. Perform Preventive Maintenance Inspection	-						2b	-	-
14.14.4. Perform System Calibration/Verification	-						2b	-	-
14.14.5. Isolate Malfunctions	-						2b	-	-
14.15. Defibrillator TR: AAMI DF-2, TIR2									
14.15.1. Clinical Application	-						A	B	-
14.15.2. Perform Operational Inspection	-						2b	b	-
14.15.3. Perform Preventive Maintenance Inspection	-						2b	-	-
14.15.4. Perform System Calibration/Verification	5						2b	-	-
14.15.5. Isolate Malfunctions	-						-	-	-
14.15.6. Maintain Battery Support Systems	-						b	b	-
14.16. Electric Beds									
14.16.1. Clinical Application	-						-	-	-
14.16.2. Perform Operational Inspection	-						-	-	-
14.16.3. Perform Preventive Maintenance Inspection	-						-	-	-
14.16.4. RESERVED									
14.16.5. Isolate Malfunctions	-						-	-	-
14.17. Multi-Gas Analyzers (Anesthesia)									

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
14.17.1. Clinical Application	-						A	B	-
14.17.2. Perform Operational Inspection	-						2b	-	-
14.17.3. Perform Preventive Maintenance Inspection	-						2b	-	-
14.17.4. Perform System Calibration/Verification	-						2b	-	-
14.17.5. Isolate Malfunctions	-						2b	-	-
14.18. Medical Laser Systems									
14.18.1. Clinical Application	-						A	B	-
14.18.2. Perform Operational Inspection	-						-	-	-
14.18.3. Perform Preventive Maintenance Inspection	-						-	-	-
14.18.4. Perform System Calibration/Verification	-						-	-	-
14.18.5. Isolate Malfunctions	-						-	-	-
14.18.6. Install	-						-	-	-
14.19. Dialysis Machines TR: AAMI RD5, RD16									
14.19.1. Clinical Applications	-						-	A	-
14.19.2. Perform Operational Inspection	-						-	-	-
14.19.3. Perform Preventive Maintenance Inspection	-						-	-	-
14.19.4. Perform System Calibration/Verification	-						-	-	-
14.20. Blood Transfusion Systems TR: AAMI AT6, BF7									
14.20.1. Clinical Applications	-						-	-	-
14.20.2. Perform Operational Inspection	-						-	-	-
14.20.3. Perform Preventive Maintenance Inspection	-						-	-	-
14.20.4. Perform System Calibration/Verification	-						-	-	-
14.20.5. Isolate Malfunctions	-						-	-	-
14.21. Interaortic Balloon Pumps (IABP)									
14.21.1. Clinical Applications	-						-	-	-
14.21.2. Perform Operational Inspection	-						-	-	-
14.21.3. Perform Preventive Maintenance Inspection	-						-	-	-
14.21.4. Perform System Calibration/Verification	-						-	-	-
14.21.5. Isolate Malfunctions	-						-	-	-
14.22. Heart/Lung By-Pass Systems									
14.22.1. Clinical Applications	-						-	-	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
14.22.2. Perform Operational Inspection	-						-	-	-
14.22.3. Perform Preventive Maintenance Inspection	-						-	-	-
14.22.4. Perform System Calibration/Verification	-						-	-	-
14.22.5. Isolate Malfunctions	-						-	-	-
15. THERAPEUTIC SUPPORT EQUIPMENT TR: Manufacturer's Literature; AAMI <i>Standards and Recommended Practices</i> ; AMA <i>Medical Equipment Management in Hospitals</i> ; ECRI <i>Inspection and Preventive Maintenance System</i> ; ECRI <i>Health Devices</i> ; NFPA 99; AFI 41-201, 41-203; Air Force Medical Logistic Letter (AFMLL); 21CFR Subchapter I									
15.1. Suction/Pressure Units TR: ASTM F960									
15.1.1. Clinical Application	-						A	B	-
15.1.2. Perform Operational Inspection	5						2b	b	-
15.1.3. Perform Preventive Maintenance Inspection	5						2b	-	-
15.1.4. Perform System Calibration/Verification	5						2b	-	-
15.1.5. Isolate Malfunctions	5						2b	-	-
15.2. Sterilizers									
15.2.1. Steam Sterilizers TR: AAMI ST8, ST19, TIR3									
15.2.1.1. Clinical Application	-						A	B	-
15.2.1.2. Perform Operational Inspection	5						2b	b	-
15.2.1.3. Perform Preventive Maintenance Inspection	5						2b	-	-
15.2.1.4. Perform System Calibration/Verification	5						2b	-	-
15.2.1.5. Isolate Malfunctions	5						2b	-	-
15.2.1.6. Install	-						b	-	-
15.2.2. Plasma Sterilizers									
15.2.2.1. Clinical Application	-						B	B	-
15.2.2.2. Perform Operational Inspection	-						-	-	-
15.2.2.3. Perform Preventive Maintenance Inspection	-						-	-	-
15.2.2.4. Perform System Calibration/Verification	-						-	-	-
15.2.2.5. Isolate Malfunctions	-						-	-	-
15.2.2.6. Install	-						-	-	-
15.3. Water Purification Systems									
15.3.1. Clinical Application	-						A	B	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
15.3.2. Perform Operational Inspection	-						-	-	-
15.3.3. Perform Preventive Maintenance Inspection	-						-	-	-
15.3.4. RESERVED									
15.3.5. Isolate Malfunctions	-						-	-	-
15.3.6. Install	-						-	-	-
15.4. Ultrasonic Cleaners									
15.4.1. Clinical Application	-						A	B	-
15.4.2. Perform Operational Inspection	-						2b	b	-
15.4.3. Perform Preventive Maintenance Inspection	-						-	-	-
15.4.4. RESERVED									
15.4.5. Isolate Malfunctions	-						2b	-	-
15.5. Dental Laboratory Equipment									
15.5.1. Clinical Application	-						-	B	-
15.5.2. Perform Operational Inspection	-						-	b	-
15.5.3. Perform Preventive Maintenance Inspection	-						-	-	-
15.5.4. Perform System Calibration/Verification	-						-	-	-
15.5.5. Isolate Malfunctions	-						-	-	-
15.5.6. Install	-						-	-	-
16. DIAGNOSTIC EQUIPMENT SYSTEMS TR: Manufacturer's Literature; AAMI <i>Standards and Recommended Practices</i> ; AMA <i>Medical Equipment Management in Hospitals</i> ; ECRI <i>Inspection and Preventive Maintenance System</i> ; ECRI <i>Health Devices</i> ; NFPA 99; AFI 41-201, 41-203; Air Force Medical Logistic Letter (AFMLL)									
16.1. Diagnostic X-Ray Systems TR: AFMLL Guidance Documents 79-2, 79-3, 79-4, 79-5, 79-6, 80-2; NFPA 70, 99; 21 CFR Subchapter J; NCRP 49, 59, 71, 91, 102, 105, 107; NEMA XR5, XR7 through XR12, XR14 through XR16; ANSI/UL 187, <i>X-Ray Repair, A Comprehensive Guide to the Installation and Servicing of Radiographic Equipment</i>									
16.1.1. Principles of X-Ray Generation	-						B	B	-
16.1.2. Fixed X-Ray Systems									
16.1.2.1. Radiologic X-Ray									
16.1.2.1.1. Clinical Applications	-						A	B	-
16.1.2.1.2. Perform Operational Inspections	5						2b	b	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
16.1.2.1.3. Perform Preventive Maintenance Inspection	5						2b	b	-
16.1.2.1.4. Perform System Calibration/Verification	-						-	-	-
16.1.2.1.5. Isolate Malfunctions									
16.1.2.1.5.1. Generator	-						2b	-	-
16.1.2.1.5.2. Beam Limiting Device	-						2b	-	-
16.1.2.1.5.3. Table	-						2b		
16.1.2.1.6. Install	-						-	-	-
16.1.2.2. Fluoroscopic X-Ray									
16.1.2.2.1. Clinical Applications	-						A	B	-
16.1.2.2.2. Perform Operational Inspection	-						2b	-	-
16.1.2.2.3. Perform Preventive Maintenance Inspection	-						2b	-	-
16.1.2.2.4. Perform System Calibration/Verification	-						-	-	-
16.1.2.2.5. Isolate Malfunctions									
16.1.2.2.5.1. Generator	-						2b	-	-
16.1.2.2.5.2. Viewing/Recording System	-						2b	-	-
16.1.2.2.5.3. Spot Film Device	-						2b	-	-
16.1.2.2.5.4. Recording Devices Other Than Spot Film	-						-	-	-
16.1.2.2.6. Install	-						-	-	-
16.1.2.3. Tomography									
16.1.2.3.1. Clinical Applications	-						A	B	-
16.1.2.3.2. Perform Operational Inspection	-						-	-	-
16.1.2.3.3. Perform Preventive Maintenance Inspection	-						-	-	-
16.1.2.3.4. Perform System Calibration/Verification	-						-	-	-
16.1.2.3.5. Isolate Malfunctions	-						-	-	-
16.1.2.4. Digital Radiology									
16.1.2.4.1. Clinical Applications	-						A	B	-
16.1.2.4.2. Perform Operational Inspection	-						-	-	-
16.1.2.4.3. Perform Preventive Maintenance Inspection	-						-	-	-
16.1.2.4.4. Perform System Calibration	-						-	-	-
16.1.2.4.5. Isolate Malfunctions	-						-	-	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
16.1.2.4.6. Install	-						-	-	-
16.1.2.5. Contrast Injectors									
16.1.2.5.1. Clinical Applications	-						-	B	-
16.1.2.5.2. Perform Operational Inspection	-						-	b	-
16.1.2.5.3. Perform Preventive Maintenance Inspection	-						-	b	-
16.1.2.5.4. Perform System Calibration/ Verification	-						-	-	-
16.1.2.5.5. Isolate Malfunctions	-						-	-	-
16.1.2.6. Magnetic Resonance Imaging TR: <i>Magnetic Resonance Imaging, Physical and Biological Principles</i>									
16.1.2.6.1. Clinical Applications	-						A	B	-
16.1.2.6.2. Principles	-						A	B	-
16.1.2.7. Nuclear Medicine TR: <i>Principles and Practices of Nuclear Medicine</i>									
16.1.2.7.1. Clinical Applications	-						A	B	-
16.1.2.7.2. Principles	-						A	B	-
16.1.2.8. Computed Tomography TR: <i>Special Radiographic Procedures</i>									
16.1.2.8.1. Clinical Applications	-						A	B	-
16.1.2.8.2. Principles	-						A	B	-
16.1.2.9. Mammography TR: NCRP 85, ACR Standards									
16.1.2.9.1. Clinical Applications	-						A	B	-
16.1.2.9.2. Regulatory Requirements	-						A	B	-
16.1.2.9.3. Perform Operational Inspection	-						2b	-	-
16.1.2.9.4. Perform Preventive Maintenance Inspection	-						-	-	-
16.1.2.9.5. Perform System Calibration/ Verification	-						-	-	-
16.1.2.9.6. Isolate Malfunctions	-						-	-	-
16.1.3. Mobile X-Ray Systems									
16.1.3.1. Radiographic									
16.1.3.1.1. Clinical Applications	-						A	B	-
16.1.3.1.2. Perform Operational Inspection	-						2b	-	-
16.1.3.1.3. Perform Preventive Maintenance Inspection	-						2b	-	-
16.1.3.1.4. Perform System Calibration/ Verification	-						2b	-	-
16.1.3.1.5. Isolate Malfunctions	-						2b		

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
16.1.3.2. Fluoroscopic									
16.1.3.2.1. Clinical Applications	-						A	B	-
16.1.3.2.2. Perform Operational Inspection	-						2b	-	-
16.1.3.2.3. Perform Preventive Maintenance Inspection	-						2b	-	-
16.1.3.2.4. Perform System Calibration/Verification	-						2b	-	-
16.1.3.2.5. Isolate Malfunctions	-						2b	-	-
16.1.4. Dental X-Ray Systems TR: NCRP 35; ANSI/ADA 26									
16.1.4.1. Intraoral									
16.1.4.1.1. Clinical Applications	-						A	B	-
16.1.4.1.2. Perform Operational Inspection	-						-	-	-
16.1.4.1.3. Perform Preventive Maintenance Inspection	5						-	-	-
16.1.4.1.4. Perform System Calibration/Verification	-						-	-	-
16.1.4.1.5. Isolate Malfunctions	-						-	-	-
16.1.4.2. Panoramic									
16.1.4.2.1. Clinical Applications	-						A	B	-
16.1.4.2.2. Perform Operational Inspection	-						2b	-	-
16.1.4.2.3. Perform Preventive Maintenance Inspection	5						2b	-	-
16.1.4.2.4. Perform System Calibration/Verification	-						2b	-	-
16.1.4.2.5. Isolate Malfunctions	-						2b	-	-
16.1.5. Complete X-Ray Preprocurement Survey	-						-	-	-
16.1.6. Perform Post Calibration Radiation Inspection									
16.1.6.1. Radiographic	-						-	-	-
16.1.6.2. Fluoroscopic	-						-	-	-
16.1.6.3. Mammographic	-						-	-	-
16.1.7. Perform Acceptance Inspection	-						-	-	-
16.2. Audiometer TR: AFMLO Guidance Document 79-1; ANSI S3.6									
16.2.1. Clinical Applications	-						A	B	-
16.2.2. Perform Operational Inspection	-						2b	-	-
16.2.3. Perform Preventive Maintenance Inspection	-						2b	-	-
16.2.4. Perform System Calibration/Verification	-						2b	-	-
16.2.5. Isolate Malfunctions	-						2b	-	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
16.3. Tympanometer									
16.3.1. Clinical Applications	-						-	B	-
16.3.2. Perform Operational Inspection	-						-	-	-
16.3.3. Perform Preventive Maintenance Inspection	-						-	-	-
16.3.4. Perform System Calibration/Verification	-						-	-	-
16.3.5. Isolate Malfunctions	-						-	-	-
16.4. Electrocardiographs TR: AAMI EC11, EC11a, EC12									
16.4.1. Clinical Applications	-						A	B	-
16.4.2. Perform Operational Inspection	-						2b	-	-
16.4.3. Perform Preventive Maintenance Inspection	5						2b	-	-
16.4.4. Perform System Calibration/Verification	5						2b	-	-
16.4.5. Isolate Malfunctions	-						2b	-	-
16.5. Physiological/Vital Signs Monitoring Systems									
16.5.1. ECG Monitor TR: AAMI EC-13									
16.5.1.1. Clinical Applications	-						A	B	-
16.5.1.2. Perform Operational Inspection	-						2b	-	-
16.5.1.3. Perform Preventive Maintenance Inspection	5						2b	-	-
16.5.1.4. Perform System Calibration/Verification	5						2b	-	-
16.5.1.5. Isolate Malfunctions	-						2b	-	-
16.5.2. Blood Pressure Monitor (Invasive)									
16.5.2.1. Clinical Applications	-						A	B	-
16.5.2.2. Perform Operational Inspection	-						-	-	-
16.5.2.3. Perform Preventive Maintenance Inspection	-						-	-	-
16.5.2.4. Perform System Calibration/Verification	-						-	-	-
16.5.2.5. Isolate Malfunctions	-						-	-	-
16.5.3. Automatic Blood Pressure Monitors (Noninvasive) TR: AAMI SP10									
16.5.3.1. Clinical Applications	-						A	B	-
16.5.3.2. Perform Operational Inspection	-						-	-	-
16.5.3.3. Perform Preventive Maintenance Inspection	5						2b	-	-
16.5.3.4. Perform System Calibration/Verification	5						2b	-	-
16.5.3.5. Isolate Malfunctions	-						2b	-	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
16.5.4. Cardiac Output Monitor									
16.5.4.1. Clinical Applications	-						-	B	-
16.5.4.2. Perform Operational Inspection	-						-	-	-
16.5.4.3. Perform Preventive Maintenance Inspection	-						-	-	-
16.5.4.4. Perform System Calibration/Verification	-						-	-	-
16.5.4.5. Isolate Malfunctions	-						-	-	-
16.5.5. Respiration Monitors									
16.5.5.1. Clinical Applications	-						A	B	-
16.5.5.2. Perform Operational Inspection	-						2b	-	-
16.5.5.3. Perform Preventive Maintenance Inspection	-						2b	-	-
16.5.5.4. Perform System Calibration/Verification	-						2b	-	-
16.5.5.5. Isolate Malfunctions	-						2b	-	-
16.5.6. Temperature Monitors									
16.5.6.1. Clinical Applications	-						-	-	-
16.5.6.2. Perform Operational Inspection	-						-	-	-
16.5.6.3. Perform Preventive Maintenance Inspection	-						-	-	-
16.5.6.4. Perform System Calibration/Verification	-						-	-	-
16.5.6.5. Isolate Malfunctions	-						-	-	-
16.5.7. Central Patient Monitoring Systems TR: AAMI EC-13									
16.5.7.1. Clinical Applications	-						A	B	-
16.5.7.2. Perform Operational Inspection	-						-	-	-
16.5.7.3. Perform Preventive Maintenance Inspection	-						-	-	-
16.5.7.4. Perform System Calibration/Verification	-						-	-	-
16.5.7.5. Isolate Malfunctions	-						-	-	-
16.5.7.6. Installation Planning	-						-	-	-
16.5.8. Telemetry Monitoring									
16.5.8.1. Clinical Applications	-						A	B	-
16.5.8.2. Perform Operational Inspection	-						-	-	-
16.5.8.3. Perform Preventive Maintenance Inspection	-						-	-	-
16.5.8.4. Perform System Calibration/Verification	-						-	-	-
16.5.7.5. Isolate Malfunctions	-						-	-	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
16.5.9. Pulse Oximeters									
16.5.9.1. Clinical Applications	-						-	B	-
16.5.9.2. Perform Operational Inspection	-						-	-	-
16.5.9.3. Perform Preventive Maintenance Inspection	-						-	-	-
16.5.9.4. Perform System Calibration/Verification	-						-	-	-
16.5.9.5. Isolate Malfunctions	-						-	-	-
16.6. Diagnostic Ultrasound									
16.6.1. Doppler Units									
16.6.1.1. Clinical Applications	-						-	-	-
16.6.1.2. Perform Operational Inspection	-						-	-	-
16.6.1.3. Perform Preventive Maintenance Inspection	-						-	-	-
16.6.1.4. Isolate Malfunctions	-						-	-	-
16.6.2. Imaging Systems									
16.6.2.1. Clinical Applications	-						A	B	-
16.6.2.2. Perform Operational Inspection	-						2b	-	-
16.6.2.3. Perform Preventive Maintenance Inspection	-						2b	-	-
16.6.2.4. Perform System Calibration/Verification/Quality Assurance Inspection	-						2b	-	-
16.6.2.5. Isolate Malfunctions	-						-	-	-
16.7. Pulmonary Function Analyzers									
16.7.1. Clinical Applications	-						A	B	-
16.7.2. Perform Operational Inspection	-						2b	-	-
16.7.3. Perform Preventive Maintenance Inspection	-						2b	-	-
16.7.4. Perform System Calibration/Verification	-						2b	-	-
16.7.5. Isolate Malfunctions	-						2b	-	-
16.8. Fetal Heart Monitor									
16.8.1 Clinical Applications	-						A	B	-
16.8.2. Perform Operational Inspection	-						2b	-	-
16.8.3. Perform Preventive Maintenance Inspection	-						2b	-	-
16.8.4. Perform System Calibration/Verification	-						2b	-	-
16.8.5. Isolate Malfunctions	-						2b	-	-
16.9. Optometry/Ophthalmic Instruments									
16.9.1. Clinical Applications	-						-	B	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
16.9.2. Perform Operational Inspection	-						-	-	-
16.9.3. Perform Preventive Maintenance Inspection	-						-	-	-
16.9.4. Isolate Malfunctions	-						-	-	-
17. DIAGNOSTIC SUPPORT EQUIPMENT TR: Manufacturer's Literature; AAMI <i>Standards and Recommended Practices</i> ; AHA <i>Medical Equipment Management in Hospitals</i> ; ECRI <i>Inspection and Preventive Maintenance System</i> ; ECRI <i>Health Devices</i> ; NFPA 99; AFI 41-201,41-203, Air Force Medical Logistics Letters (AFMLL); ANSI/UL 1262									
17.1. Film Processors									
17.1.1. Clinical Applications	-						A	B	-
17.1.2. Perform Operational Inspection	5						2b	-	-
17.1.3. Perform Preventive Maintenance Inspection	5						2b	-	-
17.1.4. Perform System Calibration/Verification	5						2b	-	-
17.1.5. Isolate Malfunctions	-						2b	-	-
17.1.6. Install	-						-	-	-
17.2. Chemical Automixers									
17.2.1. Clinical Applications	-						A	B	-
17.2.2. Principles	-						A	B	-
17.3. Film Cassette Loaders									
17.3.1. Clinical Applications	-						A	B	-
17.3.2. Principles	-						A	B	-
17.4. Laser Imagers									
17.4.1. Clinical Applications	-						A	B	-
17.4.2. Perform Operational Inspection	-						-	-	-
17.4.3. Perform Preventive Maintenance Inspection	-						-	-	-
17.4.4. Perform System Calibration/Verification	-						-	-	-
17.4.5. Isolate Malfunctions	-						-	-	-
17.4.6. Install	-						-	-	-
17.5. Tissue Processors									
17.5.1. Clinical Applications	-						-	A	-
17.5.2. Perform Operational Inspection	-						-	-	-
17.5.3. Perform Preventive Maintenance Inspection	-						-	-	-
17.5.4. Isolate Malfunctions	-						-	-	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
17.6. Microscope									
17.6.1. Clinical Applications	-						-	-	-
17.6.2. Perform Operational Inspection	-						-	-	-
17.6.3. Perform Preventive Maintenance Inspection	-						-	-	-
17.6.4. Verify Alignment	-						-	-	-
17.6.5. Isolate Malfunctions	-						-	-	-
17.7. Centrifuge									
17.7.1. Clinical Applications	-						A	B	-
17.7.2. Perform Operational Inspection	-						2b	b	-
17.7.3. Perform Preventive Maintenance Inspection	5						2b	b	-
17.7.4. Perform System Calibration/Verification	5						2b	b	-
17.7.5. Isolate Malfunctions	-						2b	-	-
17.8. Electronic Particle Counter									
17.8.1. Clinical Applications	-						A	B	-
17.8.2. Perform Operational Inspection	-						-	-	-
17.8.3. Perform Preventive Maintenance Inspection	-						-	-	-
17.8.4. Perform System Calibration/Verification	-						-	-	-
17.8.5. Isolate Malfunctions	-						-	-	-
17.9. Spectrophotometers									
17.9.1. Clinical Applications	-						-	-	-
17.9.2. Perform Operational Inspection	-						-	-	-
17.9.3. Perform Preventive Maintenance Inspection	-						-	-	-
17.9.4. Perform System Calibration/Verification	-						-	-	-
17.9.5. Isolate Malfunctions	-						-	-	-
17.10. Blood Gas Analyzer TR: NCCLS C21-A									
17.10.1. Clinical Applications	-						A	B	-
17.10.2. Perform Operational Inspection	-						2b	-	-
17.10.3. Perform Preventive Maintenance Inspection	-						2b	-	-
17.10.4. Perform System Calibration/Verification	-						2b	-	-
17.10.5. Isolate Malfunctions	-						2b	-	-
17.11. Chemistry Analyzer									
17.11.1. Clinical Applications	-						A	B	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
17.11.2. Perform Operational Inspection	-						2b	-	-
17.11.3. Perform Preventive Maintenance Inspection	-						2b	-	-
17.11.4. Perform System Calibration/Verification	-						2b	-	-
17.11.5. Isolate Malfunctions	-						2b	-	-
17.12. Electrolyte Analyzer									
17.12.1. Clinical Applications	-						A	B	-
17.12.2. Perform Operational Inspection	-						2b	-	-
17.12.3. Perform Preventive Maintenance Inspection	-						2b	-	-
17.12.4. Perform System Calibration/Verification	-						2b	-	-
17.12.5. Isolate Malfunctions	-						2b	-	-
17.13. Stress Test Systems and Treadmills									
17.13.1. Clinical Applications	-						A	B	-
17.13.2. Perform Operational Inspection	-						-	-	-
17.13.3. Perform Preventive Maintenance Inspection	-						-	-	-
17.13.4. Perform System Calibration/Verification	-						-	-	-
17.13.5. Isolate Malfunctions	-						-	-	-
17.14. Blood Cell Washing Systems TR: AAMI AT6									
17.14.1. Clinical Applications	-						A	B	-
17.14.2. Perform Operational Inspection	-						-	-	-
17.14.3. Perform Preventive Maintenance Inspection	-						-	-	-
17.14.4. Perform System Calibration/Verification	-						-	-	-
17.14.5. Isolate Malfunctions	-						-	-	-
17.15. Fiberoptic Scopes (Flexible & Rigid) TR: ASTM F896, F1218									
17.15.1. Clinical Applications	-						A	B	-
17.15.2. Perform Operational Inspection	-						2b	-	-
17.15.3. Perform Preventive Maintenance Inspection	-						-	-	-
17.15.4. Isolate Malfunctions	-						-	-	-
17.16. Thermometers, Patient									
17.16.1. Clinical Applications	-						A	B	-
17.16.2. Perform Operational Inspection	-						2b	-	-
17.16.3. Perform Preventive Maintenance Inspection	-						2b	-	-
17.16.4. Perform System Calibration/Verification	-						2b	-	-

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
17.16.5. Isolate Malfunctions	-						-	-	-
18. MAINTENANCE MANAGEMENT FUNCTIONS TR: AFI 41-201; AFCSM 41-230									
18.1. Organizational Structure of the Air Force Biomedical Equipment Maintenance Program	-						A	B	-
18.2. Responsibility of the Biomedical Equipment Branch of the Air Force Medical Logistics Office (AFMLO)	-						A	B	-
18.3. Duties and Responsibilities of Medical Equipment Repair Centers (MERC)	-						A	B	
18.4. Duties and Responsibilities of Medical Equipment Management Offices (MEMO)	-						-	B	C
18.5. Organize and Execute a Maintenance Program for WRM Equipment	-						-	b	c
18.6. Organize and Execute an In-use Maintenance Plan Program	-						-	b	c
18.7. Plan									
18.7.1. Work Assignments	-						-	-	-
18.7.2. Work Priorities	-						a	b	c
18.8. Establish									
18.8.1. Work Methods	-						-	-	-
18.8.2. Work Controls	-						-	-	-
18.8.3. Performance Standards	-						-	b	c
18.8.4. Metrics	-						-	a	c
18.9. Determine Requirements for TR: AFI 41-201									
18.9.1. Manpower TR: AFI 38-201, 38-204	-						-	A	B
18.9.2. Tools and Test Equipment	-						-	A	B
18.9.3. Maintenance Facilities	-						-	-	A
18.10. Contract Maintenance									
18.10.1. Determine Requirements for Contract Maintenance	-						-	b	c
18.10.2. Monitor Contract Maintenance	-						-	b	-
18.11. Determine Requirements for and Monitor Repair Parts Inventory	-						A	A	-
18.12. Prepare Medical Group Operating Instructions and Standard Operating Procedures TR: AFI 37-161	-						-	-	-
18.13. Prepare and Manage Financial Plan (Budget)	-						-	-	b
18.14. Assessments									
18.14.1. Military									
18.14.1.1. Self Inspection TR: https://afml.ft-detrick.af.mil/afmlo/fome/index.htm	-						-	A	C

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
18.14.1.2. Staff Assistance Visits (SAVs)/ Management Assistance Visits (MAVs)	-						-	A	B
18.14.1.3. Health Services Inspection (HSI)	-						-	A	C
18.14.2. Civilian									
18.14.2.1. Joint Commission on the Accreditation of Health Care Organizations (JCAHO)	-						A	A	C
18.14.2.1.1. Develop and Implement Medical Equipment Management Plan	-						-	a	c
18.15.3. Other Civilian Assessments	-						-	-	-
19. SUPERVISION and TRAINING									
19.1. Supervision TR: AFI 36-2103; AFMAN 36-2108									
19.1.1. Evaluate Work Performance of Subordinates	-						-	-	-
19.1.2. Counsel Personnel and Resolve Individual Problems	-						-	-	-
19.1.3. Orient Newly Assigned Personnel on Standard Operating Procedures	-						-	-	-
19.2. Training TR: AFI 36-401, 36-2103, 36-2201, 41-105; AFMAN 36-2245; AFCAT 36-2223; CFETP 4A2X1									
19.2.1. Evaluate Personnel for Training Needs	-						-	-	-
19.2.2. Plan and Supervise OJT (These requirements met by attending AF training Course taught at base level)									
19.2.2.1. Prepare Job Proficiency Guides	-						-	-	-
19.2.2.2. Motivate Trainers and Trainees	-						-	-	-
19.2.2.3. Counsel Trainees on Training Progress	-						-	-	-
19.2.2.4. Monitor Effectiveness of (These requirements met by attending AF training Course taught at base level)									
19.2.2.4.1. Career Knowledge Upgrade Training	-						-	-	-
19.2.2.4.2. Job Proficiency Upgrade Training	-						-	-	-
19.2.2.4.3. Qualification Training	-						-	-	-
19.2.3. Maintain Training Records	-						-	-	-
19.2.4. Evaluate Effectiveness of Training Program	-						-	-	-
19.2.5. Recommend Personnel for Training	-						-	-	B
20. FACILITY MANAGEMENT Note: Training requirements can only be met by attending the Facility Management Course J3AZR4A271 017, held by the 882TG at Sheppard AFB, Texas. TR: AFI 31-101, 32-2001, 41-201, 64-102, 91-204; AFMAN 23-110V5; AFOSHSTD 91-8; NFPA 70, 99,101; JCAHO Accreditation Manual for Hospitals.									

1. Tasks, Knowledge, and Technical References	2. Core Task	3. Certification for OJT					4. Proficiency Codes Used to Indicate Training/Information Provided (See Note)		
		A	B	C	D	E	A 3 Skill Level	B 5 Skill Level	C 7 Skill Level
		Training Start	Training Complete	Trainee Initials	Trainer Initials	Certifier Initials	Course	CDC	CDC
20.1. Program Overview	-						A	C	-
20.2. Facility Master Plan	-						-	-	-
20.3. Facilities Operation, Maintenance and Repair									
20.3.1. Monitor, Document, Coordinate	-						-	-	-
20.3.2. Control Work Request	-						-	-	-
20.3.3. Validate Civil Engineering Reimbursements	-						-	-	-
20.3.4. Defense Medical Logistics Standard Support (DMLSS) System	-						-	-	-
20.4. Communications Operations, Maintenance and Repairs	-						-	-	-
20.4.1. Monitor, Document, and Coordinate	-						-	-	-
20.5. Contract Management	-						-	-	-
20.6. Project Management	-						-	-	-
20.7. Housekeeping (ie Hospital Aseptic Management System [HAMS] Contract Management)	-						-	-	-
20.8. Security and Resource Protection Programs	-						-	-	-
20.9. Hazardous/Medical Waste Management	-						-	-	-
20.10. Organize and Execute Medical Group Safety Protection Program	-						-	-	-
20.11. Organize and Execute Medical Group Fire Protection Program	-						-	-	-
20.12. JCAHO Environment of Care (EC) Standards/Plans	-						A	B	-
20.12.1. Safety Plan	-						-	-	-
20.12.2. Life Safety Plan	-						-	-	-
20.12.3. Security Plan	-						-	-	-
20.12.4. Hazardous Material & Waste Management Plan	-						-	-	-
20.12.5. Utilities Management Plan	-						-	-	-
20.12.6. Medical Equipment Management Plan	-						-	-	-
20.12.7. Emergency Preparedness Plan	-						-	-	-
20.12.8. Other Environmental Considerations (i.e. Smoking)	-						-	-	-

**STS 4A2X1 TRAINING REFERENCES (TR) SOURCE SUMMARY
FOR COMMERCIAL AND OTHER SERVICE PUBLICATIONS**

Accreditation Manual for Hospitals. Current Edition, Joint Commission on the Accreditation of Health Care Organizations, 1 Renaissance Blvd., Oakbrook Terrace, IL 60181; (708)916-5800. <http://www.jcaho.org/>

Air Force Medical Logistics Letters. All Editions. Air Force Medical Logistics Office (AFMLO), 1423 Sultan Street, Fort Detrick, MD 21702-5006; (301)619-7487. https://afml.ft-detrick.afmlo/per_admin/AFMLL.cfm

American National Standards Institute (ANSI) Pamphlets. Current Editions, ANSI, Inc., 11 West 42nd Street, New York, NY 10036; (212)642-4900. <http://www.ansi.org/>

American Society for Testing and Materials (ASTM) Pamphlets. Current Editions, ASTM, 1916 Race Street, Philadelphia, PA 19103-1187; (215)299-5400. <http://www.astm.org/>

Association for the Advancement of Medical Instrumentation (AAMI) Publications. Current Editions, AAMI, 3330 Washington Boulevard, Suite 400, Arlington, VA 22201-4598; (703)525-4890. <http://www.aami.org/>

Biomedical Instrumentation and Measurement. 2nd Edition, Cromwell, Weibell, and Pfeiffer. Prentice-Hall, Inc., 1980, ISBN: 0130764485.

BodyWorks 4.0, Classic/Limited Edition. 1997, ISBN: 0763013099.

Clinical Information and Technology Series on CD Rom. (available Spring 2002) SpaceLabs Medical Inc., 15220 N.E. 40th Street, Redmond, WA 98052; (800)251-9910.

Series includes the following publications:

Blood Pressure. Andrew Nara, Michael Burns, W. Gregory Downs. SpaceLabs, 1993.

Ambulatory Blood Pressure. Thomas Pickering, Bruce Alpert, Michael De Swiet, Gregory Harshfield, Eoin O'Brien, Andrew Shennan. SpaceLabs, 1994.

Respiration. Paul Berghuis, Neal Cohen, Michael Decker, Andrew Gettinger, Kenneth Myrabo, Jon Nilsestuen, Kingman Strohl, John Yount. SpaceLabs, 1994.

Cardiac Output. T. Andrew Bowdle, Peter Freund, G. Alec Rooke. SpaceLabs, 1993.

Electrocardiography. Charles Rawlings. SpaceLabs, 1993.

Advanced Electrocardiography. Stanley Anderson, W. Gregory Downs, Paul Lander, David Mirvis, Carlos Rizo-Patron, Robert Burr, Carol Jacobson, G. Ali Massumi, James Perry. SpaceLabs, 1992.

Electromyography/Electroencephalography. Michael Isley, Gregory Kraus, Kerry Levin, Brian Litt, Robert Shields, Jr., Asa Wilbourn. SpaceLabs, 1993.

Medical Technology Management. Yadin David, Thomas Judd. SpaceLabs, 1993.

Neonatal Intensive Care. Bruce Alpert, Wil Caliwag, Reese Clark, Michael Decker, Shaul Dollberg, Ron Gordon, Steven Hoath, Michael Neuman, Donald Null, Jr., Kenneth Myrabo, James Perry, Jeff Secunda, Kingman Strohl, N. Visveshwara, Berhane Zerom. SpaceLabs, 1995.

Networks. Michael Bourke, Stephen Grimes. SpaceLabs, 1995.

Clinical Information Systems Vol I. Spacelabs.

Clinical Information Systems Vol II/III. Spacelabs

Grob Basic Electronics. 8th Edition, Grob, Bernard. Macmillan/McGraw-Hill, 1996, ISBN: 002802253X .

Health Devices. Current Edition, ECRI, 5200 Butler Pike, Plymouth Meeting, PA 19462; (610)825-6000. <http://www.ecri.org/>

Human Anatomy and Physiology. 6th Edition. Hole, John W. Jr. Wm. C. Brown Publishers, 1993. ISBN 0697122719

Introduction to Biomedical Equipment Technology, 4th Edition, Carr, Joseph J. and Brown, John M. , Prentice Hall; ISBN: 0130104922.

Inspection and Preventive Maintenance System. Current Edition, ECRI, 5200 Butler Pike, Plymouth Meeting, PA 19462; (610)825-6000.

Institute of Electrical and Electronics Engineers (IEEE) Pamphlets. Current Editions, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08855; (800)678-4333. <http://www.ieee.org/>

Magnetic Resonance Imaging, Physical and Biological Principles. 2nd Edition, Bushong, Stewart C.V. Moseby Company, 1996, ISBN: 0815113420.

Medical Device Register. Current Edition, Directory Systems Inc., 215 Shore Road, Greenwich, CT 06830. <http://www.medicaldevices.org/public/>

National Committee for Clinical Laboratory Standards (NCCLS) Pamphlets. Current Editions, NCCLS, 771 East Lancaster Avenue, Villanova, PA 19085; (215)525-2435. <http://www.nccls.org/>

National Council on Radiation Protection (NCRP) Pamphlets. NCRP, Publications Department, 7910 Woodmont Avenue, Suite 800, Bethesda, MD 20814; (301)657-2652. <http://www.ncrp.com/>

National Electrical Manufacturers Association (NEMA) Pamphlets. Current Editions, NEMA 2101 L Street, N.W., Suite 300, Washington, D.C. 20037-1526; (202)457-8400. <http://www.nema.org/>

National Fire Protection Association (NFPA) Pamphlets. Current Editions, NFPA, Publication Sales Department, 1 Batterymarch Park, Quincy, MA 02269; (800)344-3555. <http://www.nfpa.org/>

Occupational Safety & Health Administration (OSHA) <http://www.osha.gov/>

Physics for the Health Sciences. 3rd Edition, Nave, Carl and Nave, Brenda C. W.B. Saunders Co., 1985. ISBN: 0721613098.

Principles and Practices of Nuclear Medicine. 2nd Edition, Early, Paul J. and Sodee, D. Bruce. C.V. Moseby Co., 1995. ISBN: 0801625777.

Fundamentals of Special Radiographic Procedures. 4th Edition, Snopek, Alpert Michael. W.B. Saunders Co., 1999, ISBN: 0721673147.

Thomas Register. Thomas Publishing Co., One Penn Plaza, New York, NY 10001. <http://www.thomasregister.com/>

Underwriters Laboratories (UL) Pamphlets. Current Editions. UL Inc., 1285 Walt Whitman Road, Melville, NY 11747; (516)271-6200. <http://www.ul.com/>

X-Ray Repair, A Comprehensive Guide to the Installation and Servicing of Radiographic Equipment, Panichello, Joseph J., Charles C. Thomas, Publisher, 1998. ISBN 0398068151.

Code of Federal Regulations. 202/512-1800 <http://www.access.gpo.gov/nara/cfr/>

TO 00-25-234 <http://www.robins.af.mil/ti/tilta/documents/TechOrds/00-25-234.pdf>

SECTION B, COURSE OBJECTIVE LIST

Note: This section currently not used. This area reserved.

SECTION C, SUPPORT MATERIALS

Note: This section currently not used. This area reserved.

SECTION D, TRAINING COURSE INDEX

US AIR FORCE IN-RESIDENCE COURSES			
Course Number	Course Title	Course Length	Training Location
J3ABR4A231 005	Biomedical Equipment Apprentice	42 Weeks	Sheppard AFB, Texas
J3AZR4A271 017	Medical Facilities Management	3 Weeks	Sheppard AFB, Texas
J3AZR4A271 019	Advanced Field Medical Support Systems	3 Weeks	Sheppard AFB, Texas
J3AZR4A271 021	Computer Based Medical Systems	4 Weeks	Sheppard AFB, Texas
J3AZR4A271 022	Advanced Medical Laboratory Systems	4 Weeks	Sheppard AFB, Texas
J3AZR4A271 023	Advanced Medical Systems	4 Weeks	Sheppard AFB, Texas
J3AZR4A271 024	Advanced Diagnostic Imaging Systems	6 Weeks	Sheppard AFB, Texas
J3AZR4A271 025	Imaging Procurement and Acceptance Inspection	3 Weeks	Sheppard AFB, Texas
J3AZR4A271 026	Telemedicine	3 Weeks	Sheppard AFB, Texas
J3AZR4A271 027	Biomedical Equipment Management Systems	3 Weeks	Sheppard AFB, Texas

AIR FORCE INSTITUTE FOR ADVANCED DISTRIBUTED LEARNING (AFIADL) COURSES			
Course Number	Course Title	Course Length	Training Location
CDC4A251A	Biomedical Equipment Journeyman	4 Volumes	882 TRG, Sheppard AFB, TX
CDC4A251B	Biomedical Equipment Journeyman	4 Volumes	882 TRG, Sheppard AFB, TX
CDC4A271	Biomedical Equipment Craftsman	TBD	882 TRG, Sheppard AFB, TX

NOTE: Refer the website, <https://etca.keesler.af.mil> for further information on all Air Force courses and symposia.

SECTION E, MAJCOM UNIQUE REQUIREMENTS

Note: There are currently no MAJCOM unique requirements. This area reserved.

SECTION F, DOCUMENTATION OF TRAINING

DOCUMENTATION OF TRAINING (Medical Specific)

1. Work Center Training Plan and the Enlisted Training and Competency Folder. The focus of this training guidance is to bring all training documentation back into one “OJT” record. Changing medical training requirements by JCAHO created a need for additional ways to document training outside the OJT record. The end result was that each training location created different means to document training; a standardized process was needed. Air Force Instruction 36-2201, (Developing, Managing, and Conducting Training), authorizes Career Field Managers to bring training documentation back into one “OJT” record, thus the creation of the Enlisted Training and Competency Folder. All Biomedical Equipment Technician personnel, from Airman Basic to Chief Master Sergeant, will have an Enlisted Training Competency Folder.

1.1. The Folder will be kept current for the present duty position. The following information provides specific guidance along with recommended documentation, consistent with current Air Force instruction/directives. This training guidance has focused on two main areas: 1) Developing a Master Training Plan and 2) Documenting training in the Enlisted Training and Competency Folder

2. Master Training Plan (MTP). The Master Training Plan is a reference guide developed for each section that includes all facets of training for individuals assigned. It is to be used as a reference source for the type of training and documentation pertaining to each assigned member. The MTP is used to standardize training and to give trainers, trainees, supervisors, NCOICs and OICs an overview of the training process for the duty section. The MTP is also used as a means to reduce the amount of paperwork previously required during the training process.

2.1. The Master Training Plan is an overview of training for the duty section and it should include all documents involved in the training process for the duty section. Training will vary from section to section and person to person, but there are certain documents that will be a standard requirement for all MTPs. They are listed below.

2.1.1. Unit/Flight Specific Orientation Checklists

2.1.2. Job descriptions as identified in AFMAN 36-2108

2.1.3. Dual Channel OJT Concept

2.1.4. Testing procedures for CDCs

2.1.5. Use of AF Form 623 and Job Qualification Standards (JQSs) (AFI 36-2201)

2.1.6. Performance standards

2.1.7. Master Career Field Education Training Plan (MCFETP)

2.1.8. Qualification Training Packages (QTPs) required to perform peacetime/wartime duties

3. Documentation of Training (The Enlisted Training and Competency Folder). The purpose of this section is to provide guidelines and examples of proper documentation for the many forms used in training all Biomedical Equipment Technician personnel (4A2X1s). Training documentation helps to assess readiness capability, individual strengths and weaknesses, and resources needed to support quality patient care. It also aids compliance with Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and regulatory requirements. The Enlisted Training and Competency Folder is limited to the forms presented here and those prescribed in AFI 36-2201. The unit training manager can provide assistance with training documentation.

3.1. Preparing the 4A2X1 Training and Competency Folder. To assemble a 4A2X1 training record, utilize a standard 6-part folder (NSN 7530-00-990-8884, Folder, 6 Section). Attach a computer generated or typewritten label on the front cover titled “Enlisted Training and Competency Folder”. In addition, include the members/trainee’s full name (Last Name, First Name, Middle Initial), rank and SSAN. This label will be

centered and attached to the top half of the front cover of the 6-part folder, as viewed in portrait orientation. An AFVA 205-15, Privacy Act Statement, will be centered and attached to the bottom half of the front cover. To facilitate filing, other sections of the 6-part folder are discussed in detail in the paragraphs below.

3.2. Filing documents. Parts 2 through 5 are intended to replace the existing AF Form 623 and the documents contained therein. Training documents normally filed in the AF Form 623 will be filed in the 6-part folder under parts 2 through 5 in the same sequence that they appear in the current AF Form 623. Index tabs/tabbed dividers may be used in parts that contain multiple documents. When multiple copies of any form are placed in the OJT record, they are placed in chronological order with the most current documentation on top. When building the new 6-part folder, the parts of the folder will contain the documents filed in the sequence, shown in Figure 1.

Figure 1. Organization of the 4A2X1 OJT record.

ENLISTED TRAINING AND COMPETENCY FOLDER Hill, Ben E., AMN 123-45-6789		
PART 1 - Locally required training/skill competency documentation - AF Form 55 - Safety Training - AF Form 803 - Task Evaluations - Initial Workcenter Orientation - Certificates of training	PART 3 - Mandatory Training - Qualification Training - Inservice Training - AF Form 1098 (as required)	PART 5 - AF Form 2096 - PC III documentation
PART 2 - AF Form 623 and 623b - CFETP - AF Form 797 (as required)	PART 4 - AF Form 623a - Job Description/Performance Standards Review - Orientation - Training progress	PART 6 - Continuing Education record

3.2.1. Part 1, the first two-pronged section, is located inside the front cover. Locally required training and skills competency documentation is maintained in Part 1. This may include CPR training, ergometry testing, Continued Medical Readiness Training (CMRT), quality courses, etc. In addition, AF Form 803, Report of Task Evaluations will be filed in this section, if required.

3.2.1.1. AF Form 55 - *Employee Safety and Health Record*, is also maintained in Part 1, regardless of grade or training status. AFI 91-301, *Air Force Occupational and Environmental Safety Fire Protection, and Health (AFOSH) Program*, June 1996, authorizes supervisors to file the AF Form 55 with the AF Form 623, On-The-Job Training Record.

3.2.1.2. Initial Workcenter Orientation documentation.

3.2.2. Part 2, AF Form 623 and Career Field Education and Training Plan (CFETP). Attach the front cover (containing Sections 1-4) of member's current AF Form 623, into Part 2 of the 6-part folder. *Note: IAW AFI 36-2201, maintenance of AF Form 623 is mandatory for all airmen in grades Airmen Basic through Technical Sergeant. Maintenance of AF Form 623 including the CFETP is mandatory for Biomedical Equipment Technician enlisted personnel, regardless of grade.* A two part adhesive backed form, AF Form 623b, is available and will be used to document 4A2X1 training in lieu of the cardboard folder version of AF Form 623. Place the two-part form on cardstock or similar durable material and place in Part 2 of the Educational Folder. Transfer all information from the old form to the new one. The AF Form 623b must remain on top of the CFETP in Part 2. Ensure all appropriate areas of the form are properly completed before posting in Part 2. This document is formally recognized by the personnel system in contingencies and deployments as the official "cover" of the formal training record.

Figure 2, Sample AF Form 797 documentation.

JOB QUALIFICATION STANDARD CONTINUATION/COMMAND JQS								
TASK NUMBER	TASK, KNOWLEDGE AND TECHNICAL REFERENCES	CERTIFICATION						
		START DATE	CERTIFYING OFFICIAL'S INITIALS	TRAINEE'S INITIALS	MAJCOM DIRECTED USE ONLY			COMPLETION DATE
1	Perform Visual Screening, TR: The Ophthalmic Assistant, 3rd Edition CDC 4V051, Vol 2							
2	Order Spectacles, TR: AF PAM 48-133, CDC 4Vo51, Vol 1							
3	Maintain prescription Logbook, TR: AF PAM 48-133, CDC 4V051							
TRAINEE NAME <u>Jones, William G</u> AF FORM 797, MAY 87 (EF)								

PREVIOUS EDITION IS OBSOLETE

3.2.3. Part 3, AF Form 1098, *Special Task Certification and Recurring Training*. This form is used to document qualification in tasks that require recurring, mandatory, and/or inservice training. Although not mandated, this part can contain separate indexed tabs/tabbed dividers for the documentation of different categories of training. The following subparagraphs provide examples of how part 3 can be subdivided to document specific types of special or recurring training. AFSC 4N0X1 examples were used in illustrating AF Form 1098 documentation options.

3.2.3.1. AF Form 1098s in Part 3, Section A, documents mandatory recurring training (see figure 3). Examples are BLS training, Patient Sensitivity training, and other mandated training as stipulated by JCAHO standards, Air Force, or facility directives. Mandatory training requirements may vary from facility to facility. At a minimum, these requirements should be reviewed on an annual basis and updated as required.

Figure 3, Sample mandatory recurring training documentation.

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING							
TASK OR RECURRING TRAINING AND TECHNICAL REFERENCES A.	DATE COMPLETED B.	SIGNATURE OF CERTIFYING OFFICIAL C.	INITIAL OF TRAINEE D.	EVALUATION OF TRAINING			
				SCORE OR HOURS E.	TYPE F.	FRE- QUENCY G.	DUE DATE H.
BLS Training	1 Apr 95			4	C	Bi-enn	1 Apr 97
BLS Training							
Patient Sensitivity	20 Mar 95			P		A	20 Mar 96
Hospital Safety	12 May 95			P		A	12 May 96
QA&I	12 May 95			P		A	12 May 96
Infection Control	12 May 95			P		A	12 May 96
MANDATORY TRAINING DOCUMENTATION							
NAME OF TRAINEE (Last, First, Middle Initial) Jones, William G.			GRADE SRA	UNIT AND OFFICE SYMBOL SGNE			

AF FORM 1098, APR 85 (EF)

PREVIOUS EDITION WILL BE USED.

3.2.3.2. 1098s in Part 3, Section B, documents ongoing completion of Qualification Training Packages (QTPs) if applicable (see figure 4). Air National Guard sustainment training will also be documented in this section. Air Force Reserve sustainment training will be documented on AFRES Form 16, *Sustainment Training Program*, and filed in this section. The initial completion of a QTP is documented in the CFETP. ***Each QTP required for the duty section will be maintained in the MTP and will be used as a training source document. Locally developed competency packages can be utilized until QTPs are available.***

Figure 4, Sample ongoing QTP documentation.

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING							
TASK OR RECURRING TRAINING AND TECHNICAL REFERENCE A.	DATE COMPLETED B.	SIGNATURE OF CERTIFYING OFFICIAL C.	INITIALS OF TRAINEE D.	EVALUATION OF TRAINING			
				SCORE OR HOURS E.	TYPE F.	FRE- QUENCY G.	DUE DATE H.
Sterilization Procedures QTP 4N0X1-Vol 1, Module 1	27 Apr 95		P			A	27 Apr 96
Blood from Venipuncture QTP 4N0X1-Vol 1, Module 7	5 May 95		P			A	5 May 96
IV Infusion/Blood Administration QTP 4N0X1-Vol 1, Module 12/13	10 May 95		P			A	10 May 96
NAME OF TRAINEE (LAST, FIRST MIDDLE INITIAL)			GRADE	UNIT AND OFFICE SYMBOL			

AF FORM 1098, APR 85 (EF)

PREVIOUS EDITION IS OBSOLETE

3.2.3.3. AF Form 1098s in Part 3, Section C will be used to document inservice training (see figure 5).

Figure 5, Sample inservice training documentation.

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING							
TASK OR RECURRING TRAINING AND TECHNICAL REFERENCES A.	DATE COMPLETED B.	SIGNATURE OF CERTIFYING OFFICIAL C.	INITIAL OF TRAINEE D.	EVALUATION OF TRAINING			
				SCORE OR HOURS E.	TYPE F.	FRE- QUENCY G.	DUE DATE H.
Legal Issues in Nursing Capt Reardon	12 Apr 95			1 Hour			
Eye Trauma Maj Blue	15 May 95			2 Hours			
Pediatric Emergencies Lt Col Johnson	22 May 95			1 Hour			
Special Diets for Med/Surg Pts Capt Tolle	6 Jun 95			1 Hour			
INSERVICE TRAINING DOCUMENTATION							
NAME OF TRAINEE (Last, First, Middle Initial) Jones, William G.		GRADE SRA	UNIT AND OFFICE SYMBOL SGNE				

AF FORM 1098, APR 85 (EF)

PREVIOUS EDITION WILL BE USED.

3.2.4. Part 4, AF Form 623a, *OJT Training Record Continuation Sheet/Automated product*. This form will be utilized to document all progress of individual training to include facility orientation, duty section specific orientation, upgrade/job qualification training, additional pertinent training, career development course (CDC) failures/corrective actions, skill level/task decertification procedures, and supervisor/trainer/certifier entries. The entire process must be well documented on this form (See Figures 6, 6.1, 6.2). All individuals involved in the training process must document training progress as it occurs in this section. Progress/status of members in upgrade training status will be documented *at least monthly*.

3.2.4.1. Upgrade Training (5-7-9 skill levels).

3.2.4.2. Document the members entry into upgrade training and periodic (minimum monthly) evaluations of training progress.

3.2.4.3. Information on extensions, waiver requests, or breaks in training should also be clearly documented with copies of any related correspondence.

3.2.4.4. Any further training pertinent to the duty section and or unit effectiveness can also be documented on the AF Form 623a; i.e. job qualification.

3.2.4.5. Document any decertification proceedings to include dates, reasons for decertification, and other applicable information on the AF Form 623a.

3.2.4.6. Once an individual completes upgrade training commensurate to his/her rank and maintains an appropriate skill level, his/her supervisor should continue to review requirements, progress, and individual training needs. OJT record reviews should, at a minimum, coincide with member's performance feedbacks to ensure documentation currency and appropriateness.

Figure 6, Sample Orientation Documentation (4N0XX Model).

ON - THE - JOB TRAINING RECORD CONTINUATION SHEET	
<p>14 Feb 1995</p> <p>SRA Jones is assigned to the Medical/Surgical ward on this date. SSgt Smith has been assigned as a trainer for SRA Jones. SSgt Smith will orient SRA Jones to the unit using the the medical/surgical orientation checklist located in the Master Training Plan dated 17 March 1994. An initial interview was accomplished on this date. SRA Jones enjoyed his hospital orientation and is looking forward to the unit orientation. He expressed his concern on meeting previously scheduled appointments while under the unit orientaiton. I informed SRA Jones that time to attend his appointment would be scheduled as needed. SRA Jones stated that his goals during the orientation process was to learn as much as possible and to question the trainers when he was not clear as to the training provided. SRA Jones seems to be very enthusiatic about working on the ward and has expressed his desire to take on any challenges that the trainers have to offer.</p>	
SRA Jones	SSgt Smith Medical / Surgical Ward
<p>27 Feb 1995</p> <p>A mid orientation progress check was accomplished on this date. SRA Jones has progressed through the medical/surgical orientation checklist dated 17 March 1994, with little to no difficulty. He has completed his review of the unit specific OIs and has begun required reading of applicable hospital OIs. SRA Jones will complete the remainder of his orientation on night shift beginning 28 Feb 95.</p>	
SRA Jones	SSgt Smith Medical / Surgical Ward
<p>12 Mar 1995</p> <p>SRA Jones has completed all training on the medical /surgical unit orientation checklist dated 17 March 1994. A review of the checklist with SRA Jones indicates that he was knowledgable of all items discussed. SRA Jones stated that he feels comfortable with the training provided and believes that he is ready to be released from orientation. I recommend SRA Jones be released from orientaiton on this date.</p>	
SRA Jones	SSgt Smith, Trainer Medical / Surgical Ward
Concur	Concur
MSgt Finish, NCOIC Medical / Surgical Ward	Capt Done, OIC Medical / Surgical Ward
<h2 style="margin: 0;">SAMPLE ORIENTATION DOCUMENTATION</h2>	
<p>LAST NAME - FIRST NAME - MIDDLE INITIAL</p> <p>Jones, William G.</p>	

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Figure 6.1 Sample Initial Upgrade Training Briefing.

<i>ON - THE - JOB TRAINING RECORD CONTINUATION SHEET</i>		
<i>INITIAL BRIEFING (Trainee Orientation)</i>		
<p>_____ has been briefed on the On-The-Job Training (OJT) Program and how he/she fits into the program while in upgrade training (UGT). Upgrade training was explained as a dual channel process designed to qualify an airman for skill level upgrade. Dual channel OJT is a systematic reportable application of self-study and the craftsman/apprentice principle. Trainees acquire job qualification while performing on the job under supervision. This combination, knowledge and job position qualification constitutes the dual channel concept. Requirements from AFI 36-2101, 36-2108, and 36-2201 were covered. AF Forms 623, 623a, 797, 2096, and the CFETP, STS/JQS or automated JQS, which serves to make up the individual training record, was explained. Responsibilities of the commander, base training, unit education and training manager (ETM), immediate supervisor, trainer, and trainee were discussed. The career development course (CDC) was briefly discussed and will be explained in detail when the CDC arrives, if applicable. Requirements for upgrade in AFSC 4A2X1 are: (1) Satisfactory completion of CDC 4A251A and CDC 4A51B, (2) Supervisor certification of job qualifications with adequate hands on training, (3) Completion of the Biomedical Equipment Craftsman (7-level) course, if applicable, and (4) Supervisor recommendation for upgrade. Each airman in grades E1 through E6 (and SNCO's in retraining status) have an AF Form 623 which must contain a CFETP or JQS. The CFETP or JQS may contain 150 or more separate tasks but it should be annotated to show only those tasks the airman is required to perform in his/her current duty position, all AFI 36-2108 mandatory requirements for upgrade, and core task requirements. In the JQS there is a space for both the supervisor and the trainee to initial to certify training is complete. In the CFETP the trainer, trainee, and certifier has a space to initial when training is completed. After upgrade the CFETP or JQS will continue to be used to document further qualification training.</p>		
_____ <i>ETM'S SIGNATURE</i>	_____ <i>TRAINEE'S SIGNATURE</i>	_____ <i>DATE</i>
_____ LAST NAME FIRST NAME MIDDLE INITIAL		

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Figure 6.2, Sample Upgrade Documentation (4N0XX Model).

ON - THE - JOB TRAINING RECORD CONTINUATION SHEET		
<i>TRAINEE'S RESPONSIBILITIES DURING UPGRADE TRAINING (UGT)</i>		
<p>1. Read and understand your Air Force Specialty (AFS) description, training requirements, objectives, and training record (AF Form 623).</p> <p>2. Budget time (on and off-duty) for timely completion of CDCs and keep all CDC materials for future reference and study.</p> <p>3. Attain and maintain qualification in your assigned AFS.</p> <p>4. After CDC briefing trainee will do the following: (Read and initial)</p> <div style="margin-left: 40px;"> <p>_____ a. Read "Your Key to a Successful Course."</p> <p>_____ b. Make all required course corrections and return entire package to your supervisor.</p> <p>_____ c. When you are issued your first volume you will read and study the volume, chapter, and answer chapter review exercise (CRE) and the volume review exercise (VRE) or the self-test questions and the unit review exercises (URE). Questions are to be answered in the space provided when possible. Highlight/reference where answers are found in the most effective manner determined by the supervisor.</p> <p>_____ d. Supervisor will check CRE and self-test questions for accuracy and completeness. You will correct all incorrect responses.</p> <p>_____ e. Supervisor issues the ECI Form 34 (Field Scoring Sheet) for you to transcribe your answers from the URE/VRE. The URE/VREs are teaching devices and must be administered as open book exercises. All scores less than 100 percent require review training.</p> <p>_____ f. Minimum acceptable training consists of correcting incorrect responses, reading the appropriate area from which the question was taken, and a verbal question and answer session.</p> <p>_____ g. Your next volume is issued by your supervisor. You must work it in the same manner as above for the entire course.</p> <p>_____ h. Upon completion of your last volume you and your supervisor will immediately start a comprehensive review of the entire CDC to prepare for your course examination.</p> </div> <p>5. Review and discuss training requirements with supervisor regularly. Provide input on your training and ask questions.</p> <p>6. Upon satisfactory completion of your career knowledge training, position qualification, and mandatory requirements listed in AFI 36-2108, your supervisor will initiate upgrade action on you.</p>		
<p>_____ <i>ETM'S SIGNATURE</i></p>	<p>_____ <i>TRAINEE'S SIGNATURE</i></p>	<p>_____ <i>DATE</i></p>
<p>_____ LAST NAME FIRST NAME MIDDLE INITIAL</p>		

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3.2.4.7. The Job Description /Performance Standards for each duty position should be maintained in the MTP within individual duty sections. An AF Form 623a reflecting the members job description/performance standard will be maintained in Part 4 of the OJT record. Note: An AF Form 623A overprint/automated product may be used to document both supervisor/subordinate reviews (see figure 7). The following statements will be annotated and jointly reviewed by the supervisor /subordinate:

3.2.4.7.1. “I know where to find a current copy of my Job Description/ Performance Standards.”

3.2.4.7.2. “I have read, discussed with my supervisor, and understand my Job Description/Performance Standards.”

3.2.4.7.3. “I understand my duties and responsibilities for the position that I am currently working in.”

3.2.4.7.4. “If I have questions or concerns about my Job Description/Performance Standards, I will seek assistance from supervisory personnel in my chain of command.”

3.2.4.7.5. “It is my responsibility to review my Job Description/Performance Standards with my supervisor during each feedback session and with each change in supervisor/duty position.”

3.2.4.8. A signature and date block for both supervisor and subordinate will reflect mutual understanding of above statements. Recommend several signature and date spaces for continual review process when overprint/automated products are utilized.

Figure 7, Sample Job Description/Performance Standards Review.

ON - THE - JOB TRAINING RECORD CONTINUATION SHEET
<p>23 July 1995</p> <p>I KNOW WHERE TO FIND A CURRENT COPY OF MY JOB DESCRIPTION/ PERFORMANCE STANDARDS. I HAVE READ, DISCUSSED WITH MY SUPERVISOR, AND UNDERSTAND MY JOB DESCRIPTION/PERFORMANCE STANDARDS. I UNDERSTAND MY DUTIES AND RESPONSIBILITIES FOR THE POSITION THAT I AM CURRENTLY WORKING IN . IF I HAVE QUESTIONS OR CONCERNS ABOUT MY JOB DESCRIPTION/PERFORMANCE STANDARDS I WILL SEEK ASSISTANCE FROM MY SUPERVISORY PERSONNEL IN MY CHAIN OF COMMAND. IT IS MY RESPONSIBILITY TO REVIEW MY JOB DESCRIPTION/PERFORMANCE STANDARDS WITH MY SUPERVISOR DURING EACH FEEDBACK SESSION AND WITH EACH CHANGE IN SUPERVISOR/DUTY POSITION</p> <p>William Jones, SrA Medical/Surgical Ward 23 July 95 SrA Jones has completed his review of his Job Description/Performance Standards on this date. I am confident that he is thoroughly familiar with standards and expectations. At this time SrA Jones has no questions or concerns.</p> <p>John Smith, TSgt, USAF OJT Trainer Medical/Surgical Ward</p>
<p>TRAINEE NAME Jones, William G.</p>

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NOTE: A PC III automated document may be substituted for AF Form 2096.

3.2.6.1. Maintenance of certificates of training completion is an individual responsibility. Certificates of training **will not** be maintained in the OJT record. However, members must retain all certificates as verification of formal training.

3.2.6.2. Supplemental AFSC-specific documentation instructions. The Career Field Manager is authorized to supplement or revise the general guidance contained in section F of the CFETP to ensure the documents filed in the 6-part folder accurately reflect the needs of their AFSC/Medical specialties.

Figure 8, Sample NREMT Certification Form

The Reregistration and Continuing Education Report **MUST** accompany your Reregistration Application.

